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THIS WEEK'S NEWS

SPEAKING of his hopes and fears for the London plans at the National Conference of the Town and Country Planning Association recently, Professor Gordon Stephenson said that he had come to the conclusion that this generation would see London continue to grow in population and extent. p. 478

" THE ULTIMATE STRENGTH and the behaviour at failure of even simply supported prestressed concrete beams is a subject on which we know very little indeed," said Mr. F. G. Thomas, in summing up the Symposium on Prestressed Concrete. p. 493

ACCORDING to a statement issued on Tuesday by the L.C.C. concerning the future of the South Bank, the section behind the riverside garden between the County Hall and Hungerford Bridge fronting York-road is intended ultimately to be occupied by new Government offices. p. 496

REFERRING to the present steel supply position in their report at Tuesday's meeting of the Council, the L.C.C.'s Housing Committee state that there are eight schemes for 616 flats upon which it has not been possible to make an effective start and 19 schemes for 3,580 dwellings are seriously held up. Foreign steel is being imported. p. 496

" WE TALK GRANDLY of harnessing the tides on the Severn at a cost of £100 millions, but half that sum would modernise enough house and factory grates to save 20 million tons of coal a year," said Dr. J. Bronowski at a recent meeting of the National Smoke Abatement Society. p. 497

COMPETITIVE TENDERING

THE operation of the London Builders' Conference (and more important, perhaps, the defects of the competitive tendering system which brought the Conference into being) still continues to excite the attention of the building industry, though there is no public manifestation of this.

The problem, contrary to what many may think, is a national one not restricted to London. Organisations operating on parallel lines to the London Builders' Conference are to be found in several of the great provincial cities. For this reason the bodies which, in our view, should consider the matter are the R.I.B.A., the R.I.C.S. and the National Federation of Building Trades' Employers. That these three should meet and discuss a prepared agenda (on which might appear the vexed question of nominated sub-contractors) seems highly desirable. The Council of the R.I.B.A. have publicly stated that they cannot approve the Conference method of dealing with certain unsatisfactory by-products of the competitive tendering system, but to do so is not of itself to deny the fact that such by-products exist. Positive action is required, and the R.I.B.A.—whose members should, by virtue of their calling, lead the different professions and trades which together make up the building team—are the natural body to initiate such discussions. We hope they will seize the opportunity.

IN PURSUIT OF PRODUCTIVITY

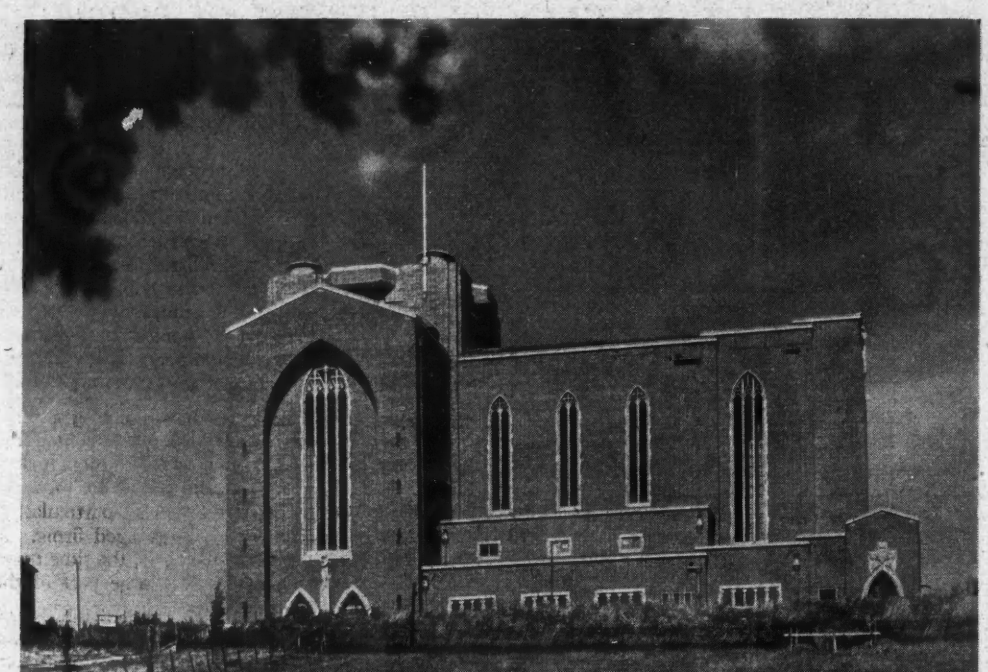
AT the recent Building Research Congress the building industry came under a hot fire of criticism from the scientists who, on the basis of apparently sound evidence, charged it with many failings, including a traditional outlook, backwardness in adopting and applying modern industrial technique, under-productivity and " unwillingness to learn." Attention was called to the undue predominance of small firms within its ranks and Sir Ben Lockspeiser, in his thoughtful address to the Congress, suggested that, in the interests of efficiency, many of these should be grouped together to undertake specialised activities as sub-contractors in regional relationship to the larger main contractors. Greater mechanisation, fewer firms and better organisation and management, in brief, were held to be the vital needs of the industry if it is to play its full part in the social and economic life of the nation.

Building in the past has been, and generally it still is, organised as a craft industry, and many hold that it cannot be otherwise; nevertheless, even under these conditions, great advances in organisation and technical efficiency have been made during the past 50 years, particularly within the upper group of large and well-managed firms. Now, if the scientists are right in their diagnosis, the time may have come for a radical reorganisation of a large part of the industry.

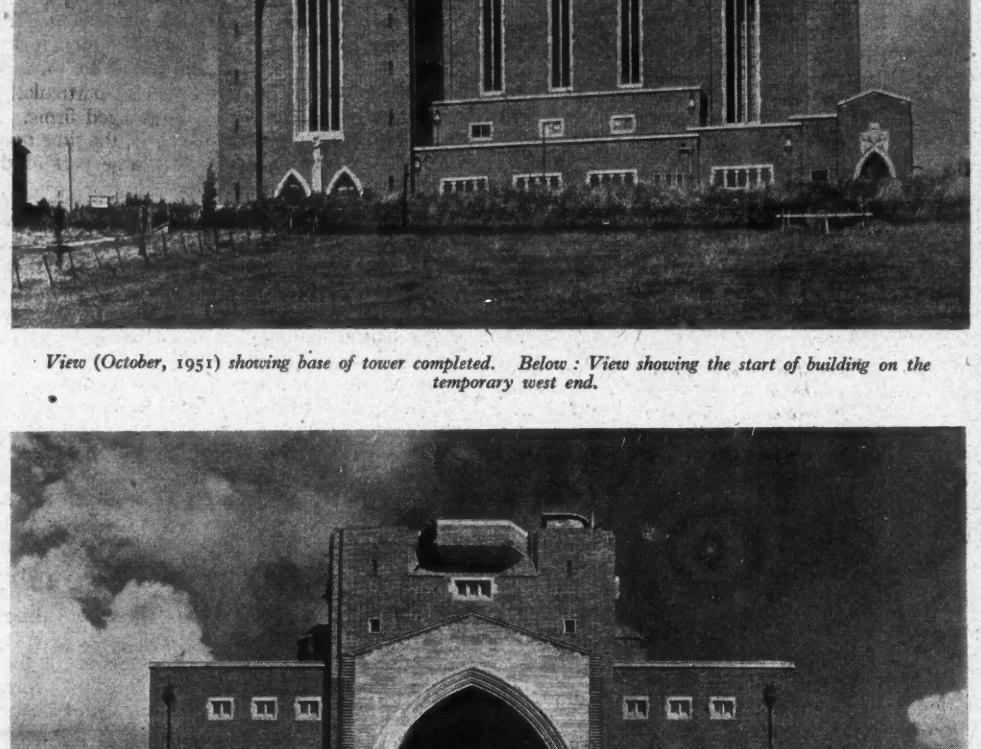
In the meantime, it is more immediately helpful to turn from such fundamental considerations to the very practical review of existing means of increasing productivity given by Sir Thomas Bennett in his paper before the annual conference of the Institute of Housing, which we printed in our issue for September 28. Sir Thomas ranged suggestively over the whole field of building, from education to time-and-progress schedules. His paper deserves intensive study in all its details. Here we can touch only on a few points of major interest. Sir Thomas held that, in general, work is still carried out most efficiently and economically by a form of lump-sum contract, which places responsibility for efficiency in running on the shoulders of the general contractor, and that generally the best results are secured by competitive tendering. A possible solution of the problem of cut-price tendering for public work advertised as for open competition may be found in Sir Thomas's suggestion that only the names of those wishing to tender should be invited, and that from these a short list should be selected. Though such a system might tend to penalise new, untried but possibly competent firms, it would at least ensure the elimination of the known cut-price offenders. Sir Thomas was clearly not impressed by the claims often made for direct-labour, owing to the difficulty of assessing overheads, and pointed out that the utmost that can be saved by direct labour is the profit of the builder, which is often offset by the indirect overheads; these in turn are easily balanced by efficient management.

Sir Thomas claimed that good management is the essence of productivity, but stressed the need for incentives, for a proportionately higher wage for the craftsman *vis-a-vis* the labourer, and for higher standards of technical education, both operative and supervisory. On the vital question of apprenticeship, he held that it was useless to expect a few builders to train all the craft labour needed for the whole industry; it is also unfair to expect them to do so. This is clearly a problem to be grappled with by the industry as a whole, every firm assuming responsibility for its due proportion of apprentices.

The implications of the critical examination which the industry has been undergoing will not be lost on the architectural profession, which has also received some pretty hard knocks. However, both profession and industry are well enough organised to put their own houses in order, which we hope and believe they will contrive to do, as necessary, without undue interference from outside.



View (October, 1951) showing base of tower completed. Below : View showing the start of building on the temporary west end.



GUILDFORD CATHEDRAL : RECENT PROGRESS

EDWARD MAUFE, R.A., F.R.I.B.A., ARCHITECT

NOTES & NEWS

THE ASSOCIATION EXAM. AND PRACTICAL EXPERIENCE

WE UNDERSTAND that the R.I.B.A. Council is shortly to reconsider the situation (to which attention has been drawn in our columns) in which certain students at recognised schools of architecture have found themselves as the result of the ruling that the successful passing of the Final examination must in future be followed by 12 months practical experience before qualification as Associate R.I.B.A. be granted. It is likely that a tribunal will be set up to consider cases of hardship and that the decisions of this tribunal will be made known in advance of the next Final examinations, to be held in March. The R.I.B.A. is to be congratulated on this step which, we gather, in no way invalidates the decision taken in general to require 12 months practical experience, but is intended to give relief where genuine hardship is likely to be experienced by students whose career has been interrupted by the war.

R.I.B.A. AND COMMONWEALTH STUDENTS

ONE OF THE BEST of recent innovations at the R.I.B.A. was the party given last year for architects and architectural students from the Commonwealth and the U.S.A. On Tuesday night this successful experiment was repeated, and nearly 250 students from 18 different parts of the Commonwealth and from the U.S.A. were the guests of the Institute and were received with customary warmth by the President and Mrs. Graham Henderson. Members of Council and other leading figures in the profession were there in force and were able to talk informally with their guests and sometimes to offer assistance in various problems. Such meetings do much to knit together both the Commonwealth and the Institute, and are very practical proof of the unity that exists between the R.I.B.A. and its Allied Societies overseas.

R.I.B.A. EXAM. RESULTS

AT THE R.I.B.A. Examination for the Office of Building Surveyor under Local Authorities held on October 3, 4 and 5, eleven candidates presented themselves and the following were successful:—Messrs. Frank Berry, Stanley R. Cardwell, Stanley H. Coe, Norman Harvey, Frank Robinson and John G. Stean.

SIZES OF L.C.C. ROOMS

AN INTERESTING POINT has come up in connection with the room sizes shown in the type plans for balcony-access flats recently introduced by the London County Council and illustrated in *The Builder* for July 27 last. Architects engaged on local authority housing will not have failed to notice that the area of bedroom No. 1 is shown as 120 sq. ft., whereas the Housing Manual recommended area is 135 sq. ft.

We have taken this point up with the Ministry of Local Government and Planning, whose Press officer replies: "The L.C.C. had a special dispensation for the reduction in the size of the bedroom. If any application were made by any other Local Authority, this would be treated on its merits as was the L.C.C.'s application." *Verb. sap.!*

REPORT ON PRESTRESSED CONCRETE

IT IS, of course, far too soon to prepare anything in the nature of a code of practice for prestressed concrete, and the authors' of the "First Report on Prestressed Concrete" (issued by the Institution of Structural Engineers, price 3s. 6d.), have wisely refrained from being dogmatic in their recommendations. Generally it may be said that the report expresses (in 23 pages) the views of some of the most prominent exponents of prestressed concrete, and consequently its recommendations will not be accepted by all. A suggested notation comprises no fewer than 86 symbols of which the many will need suffixes. It is a pity that the opportunity has been missed to issue an agreed international notation which might make easier the study of the literature of this new subject which is now being published in a number of languages and with a variety of notations.

THE END OF ROMANO'S

ROMANO'S, the Strand's once famous restaurant and a favourite resort of Gaiety girls and their admirers, is being rapidly reconstructed after being closed for many years. All the fittings have been removed and the little "Cherubs" which for a generation adorned the gay portico, have disappeared.

On the upper floor a mural in the form of a crown remains above a seat, which the Prince of Wales, afterwards Edward VII, is reputed to have used. A ladies' gown shop is to be erected on its gutted site. The upper part will be let as offices.

Romano's was founded in 1874 by Nicholino Romano, formerly head-waiter at the Café Royal in Regent-street.

STEEL SUPPLIES

ATTENTION is drawn to the fact that application forms for steel authorisations for work now being carried out under a building licence (C.L.1138 or 1161) must be returned to the address from which the building licence was issued by October 22 at the latest. The application should be made by the holder of a building licence on form MOW 2065. No one will be entitled to acquire certain forms of steel after December 3 without the requisite authorisation.

ARCHBISHOP TEMPLE MEMORIAL

THE MARBLE ALTAR in memory of Archbishop William Temple in Canterbury Cathedral, which was designed, together with the cross and candlesticks for it, by Mr. Stephen Dykes Bower, F.S.A., F.R.I.B.A., A.A.Dipl., will be hallowed by the Archbishop of Canterbury after evensong on October 16. The altar stands in the chapel of St. John the Evangelist.

LINCOLN CITY ARCHITECT

MR. ERNEST FIRTH, A.R.I.B.A., A.M.T.P.I., who for the past two years was chief architect at York and formerly chief architectural assistant on the staff of Lincoln Corporation, has been appointed Lincoln City Architect.

R.F.A.C. APPOINTMENTS

MR. J. M. RICHARDS, A.R.I.B.A., has been appointed a member of the Royal Fine Art Commission in succession to Mr. Raymond Mortimer. Professor W. G. Holford, F.R.I.B.A., has been reappointed a member of the commission.

COLOMBO EXHIBITION

MR. MISHA BLACK, director of Design Research Unit, has been appointed consultant to the Government of Ceylon in connection with the Colombo Plan Exhibition which will cover some 40 acres and is to be held in Colombo in February next.

PROFESSIONAL ANNOUNCEMENT

MR. ARTHUR S. CRIPPS, F.I.A.A. and S., M.R.San.I., architect and surveyor, of 6, Shooters'-hill, Cowes, Isle-of-Wight, has taken into partnership MR. HEDLEY C. FARROW, A.R.I.B.A. The firm's name is now ARTHUR CRIPPS AND FARROW.

COMING EVENTS

MONDAY, OCTOBER 15

ASSOCIATION OF BUILDING TECHNICIANS.—General discussion in which the chief speakers will be Sir Luke Fawcett and Mr. Stephen Hudson. Dennison House, Vauxhall Bridge-road, S.W.1. 6.30 p.m.

TUESDAY, OCTOBER 16

FRANCO-BRITISH UNION OF ARCHITECTS.—Exhibition of students' drawings in connection with the Franco-British Students' Competition. Bartlett School of Architecture, London University, Gower-street, W.C.1.

HOUSING CENTRE.—A.G.M. (4.45 p.m.) followed by an address by Mr. R. J. Gardner-Medwin, A.R.I.B.A., A.M.T.P.I., on "Scottish Housing Since the War" (5.30 p.m.). 13, Suffolk-street, Haymarket, S.W.1.

WEDNESDAY, OCTOBER 17

REINFORCED CONCRETE ASSOCIATION.—"Moving Forms of Concrete Construction," by Mr. H. H. Broughton, M.Inst.C.E., M.I.Mech.E. 11, Upper Belgrave-street, S.W.1. 6 p.m.

THURSDAY, OCTOBER 18

TOWN AND COUNTRY PLANNING ASSOCIATION (STUDENTS' PLANNING GROUP).—"The 1951 Census," by Mr. Mark Abrams. 28, King-street, Covent Garden, W.C.2. 6.15 p.m.

SOUTH EASTERN SOCIETY OF ARCHITECTS (EDUCATION COMMITTEE).—Students' prize distribution to be carried out by Mr. Cecil L. Burns, F.R.I.B.A., and a criticism of students' work by Mr. Peter Shepheard, B.Arch., A.R.I.B.A., A.M.T.P.I. Royal Pavilion, Brighton. 5.30 p.m.

INSTITUTE OF HOUSING (LONDON AREA BRANCH).—"Housing for Special Purposes," by Mr. P. L. Leigh-Breese, J.P. St. Marylebone Town Hall, N.W.1. 6.30 p.m.

CHADWICK PUBLIC LECTURES.—"Cholera and Sanitation in England," by Professor J. F. D. Shrewsbury. English Theatre, Edmund-street, Birmingham, 3. 4.30 p.m.

INSTITUTION OF MECHANICAL ENGINEERS.—Annual dinner. Dorchester Hotel, Park-lane, W.1. 7.30 p.m.

INSTITUTION OF SANITARY ENGINEERS (N.W. DISTRICT).—"Concrete Lining of Corroded Water Mains," by Mr. R. Petherbridge. College of Technology, Manchester. 7 p.m.

FRIDAY, OCTOBER 19

LONDON MASTER BUILDERS' ASSOCIATION.—Conference on Building Education. 47, Bedford-square, W.C.1. 2 p.m.

INSTITUTION OF MECHANICAL ENGINEERS.—Presidential address by Mr. A. C. Hartley, C.B.E. Storey's Gate, St. James's Park, S.W.1. 5.30 p.m.

FROM "THE BUILDER" OF 1851

Saturday, October 11, 1851

ETON.—The College authorities have granted a site for a new chapel near the present one, and a committee has been appointed by the parishioners to promote the object in view. The probable cost of the chapel will be about £5,000. Of this sum about £2,000 have already been subscribed, and a sub-committee has been directed to confer with some architect of eminence as to the design, and to report.

LONDON DEVELOPMENT PLANS

Professor Gordon Stephenson's "Hopes and Fears"

"HOPES and Fears for the London Plans" was the title chosen by PROFESSOR GORDON STEPHENSON, B. Arch., F.R.I.B.A., A.I.L.A., A.M.T.P.I., Professor of Civic Design at Liverpool University, for his paper (from which we print the following extracts), at the National Conference of the Town and Country Planning Association, which was held at County Hall, London, on October 4 and 5. Professor Stephenson, said :

At the end of the war, when I was a Londoner for a while, hopes for the County and Greater London Plans ran high. They were still running fairly high when the City of London Plan was published in 1947. This was the year in which Parliament passed the comprehensive and far reaching law to give much needed power to the planning authorities. Many thought, and many still think, that if you set down on paper a series of principles and ideas in sketch form, obtain general if confused agreement, and then become possessed of considerable powers to translate proposals into action, planning is plain sailing. They are wrong. Planning is a slow, laborious *process*, and it is important that at all stages in the process there should be free discussion and constructive criticism. It is more essential than ever that an association which, through the years, has developed ideas about national planning policy, should provide a forum. The use of planning powers for the wrong reasons is to be deplored : the use of planning powers without good reason is dangerous—not only to planning but also to democracy.

The three London plans which we are to discuss to-day were advisory plans. We do not yet know how the development plans, being prepared by the different authorities in the Greater London area, will be shaped. We can only hope that many of the principles enunciated in the three plans will have guided those responsible for their preparation.

SOUND PRINCIPLES

It has been generally agreed that the principles are sound and that the basis for a better London was established—in print. The advisory plans are remarkable in many ways. Despite the fact that they were prepared under difficult conditions they are technically more competent than most plans, they make their points in a realistic and humanistic way, and, though there was no national planning policy, they take into consideration many matters of national interest. It should perhaps be added that three of the four authors, John Forshaw, Professor Sir Patrick Abercrombie, and Professor Holford, are graduates of the Liverpool School of Architecture and the fourth, Dr. Holden, being a Lancashire man, has natural as well as acquired gifts !

It may be useful to remind ourselves of a few essential points in the plans. Though they were prepared separately they are cohesive. All assume that the growth of London will be restrained. In doing so they expose themselves to the danger of a breakdown. The signal is set for danger at the present time.

In general terms the plans distinguished some major defects resulting from the growth and structure of London :

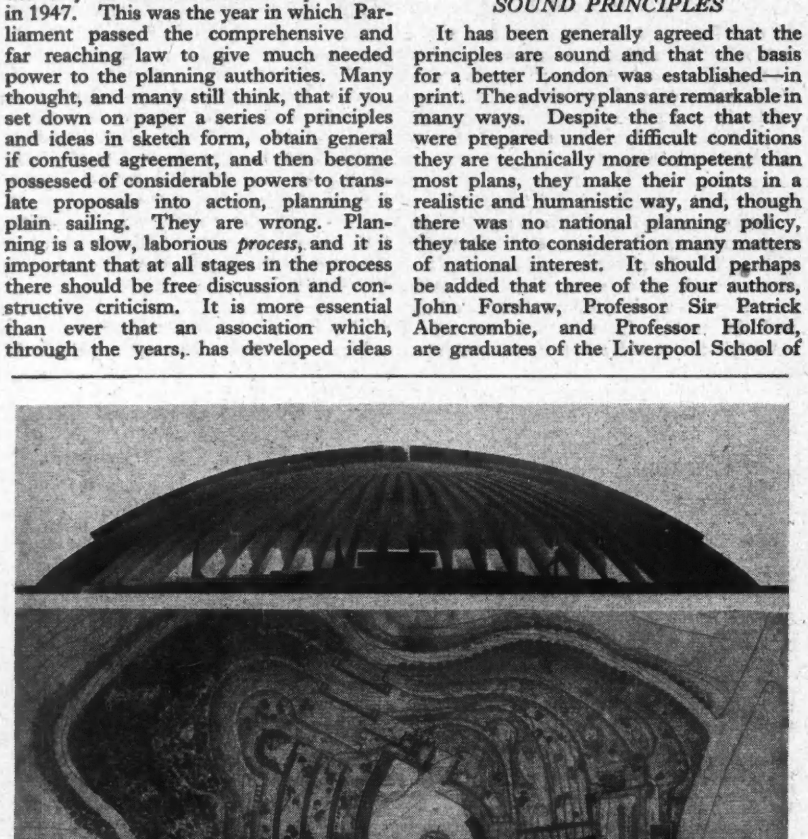
1. Traffic congestion.
2. Decaying and obsolete housing, particularly in the county and some other parts of the inner urban area. This is a major defect in every large urban area. For more than a century housing demand has exceeded supply. Up to the present, towns have grown by adding new rings of development at the outer edge, leaving inner rings to decay.
3. A great deficiency of recreational open space and a bad distribution of existing open spaces.
4. General congestion due to higher density development in inner areas and the indiscriminate mixing of housing and industry.
5. Haphazard railway development.

What are the main development proposals contained in the Plans ? Are they being followed ?

1. The most important proposal is that over 1m. people with their workplaces should leave the built area to be accommodated in New Towns, expanded towns, and quasi-satellites. To carry this out should not, in theory, be difficult. Between the wars 2m. people were accommodated in new suburbs. Yet there are enormous difficulties. Most of them stem from a faulty administrative machine. Up to the present decentralisation has taken place in a way not dissimilar to that of the inter-war period. New suburbs and the quasi-satellites (which are scattered suburbs) have occupied the house building and civil engineering industries. In addition there has been fairly extensive rebuilding of bombed sites. The New Towns, to all intents and purposes, have made little contribution. There is as yet no machinery for expanding towns in the outer country ring, though legal machinery has been promised.

2. The plans contained many proposals for new major roads. Some are still being examined ; many will be scaled down. I, for one, am assuming that highway developments in the London area in the next 20 years will be very modest as compared with the proposals in the three advisory plans. What is urgently required is a plan for action to provide off-street parking for central London.

3. Some steps have been taken, notably by the London County Council, to provide recreational open space in the East End. These are brave steps, taken at a time when there is an insistent demand in war-damaged towns that dwellings should be built on all vacant sites. But every encouragement should be given for more to be done, especially in providing many minor play spaces for the smaller children.



The winning design submitted by Mr. Joseph Klarwein, of Jerusalem, in the recent Herzl Memorial competition. The competition was judged by a jury of ten, one of whose members, Mr. N. Aslan, A.R.I.B.A., practises in London. The memorial is to be erected on Mount Herzl, Israel.

4. The relief of congestion is the most complicated problem. All the plans make proposals. The City of London Plan rightly or wrongly assumes that the amount of building floor space in the City should rise once more to an amount nearly equivalent to that which existed in 1939 (82 m. sq. ft. compared with 85¾ m. sq. ft.). The target working population figure for the square mile is nearly ½ m. The plan is generally accepted as the best arrangement which could be made to get the agreement of all parties.

VAGUENESS OF THE COUNTY PLAN

The County of London Plan was hesitant and vague about the central area, but it made tentative proposals for extending it—for example, to the South Bank. We all know that there has been a westward movement of businesses in central London. It is possible and highly probable that the total volume of building for business in central London, including the City, will continue to grow. The end of the demand for such space is far from sight. This is a matter of considerable concern for the London plans—and, perhaps of more importance, for the country as a whole. Both Government and business seem determined to pile up vast office buildings in central London — and very little office building is going on in the rest of the country. Even if industrial growth in London is checked—and it cannot be said that it is being fully restrained, for short-term policies do not allow this—the working population may continue to rise steadily though it may change in composition. This would, of course, have a marked effect on the plans, and the factors making for congestion in the inner residential areas would remain. It would be odd if the overcrowding in the East End were relieved at the expense of the western and southern boroughs.

A noble start has been made to reconstruct the East End according to the guiding principles of the plan, but it is only a start. In clearing and rebuilding congested obsolete areas there is a very important human problem. People cannot be herded like animals. Alternative accommodation has to be found for them and timing is of first importance. There is no effective link between the L.C.C. and New Town corporations and industry. If no adequate machinery is established in the next year or two—and it must be machinery which works smoothly and to time—I can see no alternative to the L.C.C. building in the New and expanded towns so that it may have accommodation at the right time, at the right rent and near to the right industry for the families displaced by its large reconstruction operations.

ECONOMIC FACTORS

The second factor working against comprehensive reconstruction is an economic one. The executed schemes I have seen are too expensive. We are not going quickly enough. For social and economic reasons we must produce more with what we have got. This is a national problem as well as a London one. It is also of national concern that block after block of flats is being built in London at twice the cost of the equivalent in houses in the smaller industrial towns. The taxpayers of the country as a whole make up most of the difference. They also pay for lifts if somebody fancies them.

If an individual or an individual concern wishes to live or operate on a congested site by all means let them do so and pay for it. But do not let us heavily subsidise congestion.

My remedy is simple. If land, whether new or cleared, is required for social purposes (e.g., housing) write off the cost of the land. From that point on let social demand and economic clear thinking decide what is to be done. Presumably some flats will be required. I, for one, do not know what the proportion should be in relation to houses. But I do know that whether in an old or a New Town or in central London the proportion should be fairly constant, though there might reasonably be a difference in density according to location. The only argument for continuous flat development which stands examination is that land in some places is very high in value. But the 1947 Act and the Housing Act should take care of that. Unfortunately, the financial provisions encourage flat building in most reconstruction areas. This does not make sense now that the amount of built and unbuilt land available for housing is determined by plans. If we know what land is available for housing and how many dwellings are required, surely adjustments can be made as between one piece of land and another? Must we assume that our plans are too rigid and that there is no give and take between one part of a plan and another? I think we must, and what is more, we must also assume that there is no way as yet to provide give and take between the development in one planning area and another. This can be seen in various parts of the country, and especially in housing development. It is clearly evident in London. It is because each local authority is asked to solve its own problem as if it were in isolation.

INSUFFICIENT FLEXIBILITY

My greatest fear for the London plans is that there is insufficient flexibility—little give and take. This is largely because the planning machinery is in separate pieces and there is no authority able to skip across administrative boundaries to build dwellings where they are required.

My second greatest fear is that the London plans are being built up on sketches based on assumptions; the main one being that the growth of London will be restrained. I should like to conclude by explaining why I have such fears.

In all too brief Chapter 14 of the Greater London Plan, Sir Patrick Abercrombie put forward suggestions for a planning board with constructive duties for the whole Greater London area. His argument was that the problems must be seen as a whole and that solutions in one part of the area must have repercussions in others. The region may then be considered as consisting of two main parts. The inner core would be made more spacious; the outer country ring would be a reception area.

He also suggested that the board should function as a regional open space authority, a housing corporation and an industrial controller. The need for an overall authority for the direction and development of housing and industry is very evident at the present time (as indeed it is in other conurbations). There is much to be said for local authorities being responsible for housing problems in their own areas. There is nothing to be said for their trying to reduce their housing lists by building in the area of another authority. The best way to reduce housing lists is to build more houses—in the right places, at the right time, with new industries related to them.

A SUGGESTION

Here I want to make a suggestion. Now that the County of London is forbidden to trample more grass in the Greenbelt ring, its out-county housing organisation might well become the team for a regional housing authority. As an organisation it is certainly the largest and, almost certainly, the most efficient in the country. Its production record is astonishing. Though the quality of its design leaves much to be desired this could be greatly improved if it were given high quality architectural leadership. In a year or two this organisation will have completed most of the work in the quasi-satellites. Now is the time to head it towards pastures destined as reception areas in the plan. If it is not headed in the right direction—planners beware!

Having given a warning I want to raise a question. What has happened to the Clement Davies Committee Report of 1949? The committee sat for three years to consider what organisation was needed to implement the Greater London Plan. Though the committee was not unanimous it recommended the establishment of a regional authority with powers of direction, supervision and finance. As an interim measure it suggested a regional advisory committee. In other words, it agreed in principle with Sir Patrick Abercrombie's recommendations, but said, "proceed fairly slowly." Since 1949, the report has quietly and mysteriously been shelved. We remain without any understandable organisation for overseeing the biggest and most complicated regional planning problem in Europe.

WHERE THE PLAN IS FAILING

My last point, or fear, is concerned with realisation and development. While development plans for various sectors are receiving final touches, and committees discuss the work of other committees on every matter raised, *building goes on.* Houses are being erected at the average annual rate of the inter-war years; new schools are appearing in many places; huge office blocks are rising; industrial establishments are changing hands; some new factories are being built; others are being expanded (for the export trade only, of course). But the timing of the whole process is badly out. Despite our great hopes many parts of the plan are failing in their purpose. The saddest story concerns the New Towns. They are only just beginning to make a show.

At the very end of the Abercrombie Report of 1944 there are two pages dealing

with "Period Realisation." They stress the dynamic aspect of planning; that a plan on paper sets an objective but it is out-of-date as soon as it is printed; that a plan must be shaped by succeeding generations. But they also showed in figures that the main movement of population and industry from the inner to the outer parts should be completed in about one decade if the ultimate regional population were to be about 10 m. The New and expanded towns and the quasi-satellites should have received about 500,000 people by the end of 1951—assuming a rate of development which has in fact taken place. The New Towns should have been almost half-built by now and at peak production. The corporations have organisations large enough to produce many thousands of houses per year. A few hundred houses have been erected in New Towns—many thousands must have gone into the wrong places.

Can it be that the eight New Towns are going to add to the size of London? How many think of New Towns as part of a plan? I get tired of hearing them called experiments—especially by people who have never bothered to study the work of Howard and Unwin—to name only two of the pioneer-experimenters of the early twentieth century. The New Towns are part of a plan—or they are wrongly sited, and the capital being expended on them should have been used to create new and finer communities in those parts of the country which suffered so much from depression before the war.

I have come to the conclusion that this generation will see London continue to grow in population and extent. Even if there were a powerful regional planning authority it would be frustrated in many ways if there were no resolute *national policy of decentralisation*.

I expect to live to see 12 m. people in the London region. If such a concentration of population is justified on social and economic grounds there is nothing wrong with it. But I doubt whether it will be justified. I am afraid it will be a bad day for Britain.

LONDON'S BLIGHTED AREAS

L.C.C. Plans for Eight Areas

THE proposal that areas of extensive war damage, blight and obsolete development should be replanned comprehensively was put forward in the County of London Plan, 1943, and under powers conferred in the Town and Country Planning Act, 1944, the London County Council has already taken steps to deal in this way with the Stepney/Poplar and the Bermondsey reconstruction areas.

The Council now proposes to recommend to the City Corporation that similar action should be taken in regard to an extensively war-damaged area in the City of London, and itself puts forward proposals for seven other areas within the County. These are referred to in a report by the Town Planning Committee presented to the Council on Tuesday. The report states:

"The proposal that areas of extensive war damage, blight and obsolete development should be replanned comprehensively was put forward in the County of London Plan, 1943, and, under the powers conferred in the Town and Country Planning Act, 1944, the Council has already taken steps to deal in this way with the Stepney/Poplar reconstruction area and the Bermondsey reconstruction area. The City Corporation also obtained powers for dealing with an extensively war damaged area in the City of London. These areas, with certain modifications, are now submitted for definition as areas of comprehensive development.

"We have also made a careful examination of other areas which should be redeveloped comprehensively during the twenty years to be covered by the Development Plan, bearing in mind the financial and other resources which the Council is likely to be able to make available for the purpose. We have selected the South Bank, Elephant and Castle and Bunhill Fields areas, on the Council's own behalf, and the Lewisham Clock Tower and St. Mary, Woolwich, areas.

"The selection of these areas has been a difficult task in view of the limited resources available and the large extent of the areas of war damage, obsolete development and bad layout to be dealt with. The co-operation of all developers will be necessary to secure the realisation of the reconstruction schemes proposed as the Council's capital resources would not be adequate to secure the desired results unaided.

"We propose that the Stepney and Poplar, Bermondsey and Elephant and Castle areas shall proceed on the basis of the Council's acquiring most of the land in the areas. In the case of the South Bank and Bunhill Fields areas, we consider that the Council would be fully justified in defining them as areas of comprehensive development on the basis, however, that the Council is not thereby committed to the acquisition of land on its own initiative for the purpose of securing the development of these areas."

SCHEMES IN DETAIL

The following is a brief description of the areas:—

(1) *The City of London area.*—The area, totalling 244 acres, contains the most devastated parts of the City. The chief planning defects to be remedied are poor road pattern, congestion and lack of open space. The main purposes in redevelopment will be to complete this setting, to provide a new through road and to provide sites for the development of buildings in a more comprehensive manner than was allowed by the previous inadequate street pattern.

(2) *Stepney/Poplar area.*—This area of 1,312 acres includes no less than 268.48 acres of war damaged land, of which 173.89 acres is vacant. Before the war this area provided homes for 217,000 persons, but the population is now 106,000. A start has been made by the construction of part of neighbourhood 9, Lansbury.

(3) *Bermondsey area.*—This area, which contains historic Rotherhithe, was badly bombed and contains much obsolete development. Planning will follow the lines indicated for the Stepney/Poplar area. The proposals include the opening up of the river front to provide riverside open space and to extend it from the river to Southwark Park. The area is 121 acres.

(4) *South Bank area.*—Statutory powers to reconstruct an area next the County Hall were in force before the war. One of the aims of the County of London Plan was to provide civic and cultural buildings on the south bank comparable in dignity with those on the north. Conditions of bad layout and obsolete development (particularly old industrial and commercial buildings), war damage and extensive areas of vacant land make this area especially suitable for reconstruction. It stretches from Vauxhall Bridge to Southwark Bridge.

In addition to an improved road layout, additional riverside open space is intended. The area is 288 acres.

(5) *Elephant and Castle area.*—This area is the congested focal point of six main roads and has long been in need of improvement. In a small area of 31 acres it received some of London's most concentrated war damage. It is the intention to improve this road junction and at the same time to provide for redevelopment by buildings of a commercial and shopping type worthy of this important position in South London.

(6) *Bunhill Fields area.*—This area of 43 acres is, in effect, an extension of the City area. The extent of the war damage renders it most suitable for reconstruction. It will be redeveloped mainly for office, commercial and residential purposes.

(7) *Lewisham Clock Tower area.*—The area suffered considerable devastation. Its present derelict state presents an opportunity for reconstruction and improvement of the major road junction. The area is 40 acres.

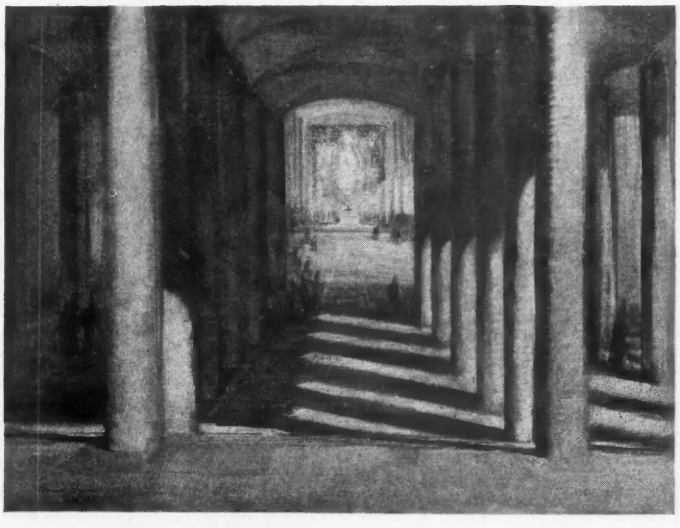
(8) *St. Mary, Woolwich area.*—This area of 72 acres is mainly residential in character and part was scheduled for slum clearance before the war. Its obsolete character and war damage makes comprehensive development desirable. The area adjoins the Woolwich shopping centre.

"The replanning and redevelopment of these areas, taken in conjunction with the improvements which will take place elsewhere in the Administrative County during the twenty years covered by the Development Plan, will, we suggest, be a worthwhile step in the achievement of the Council's long-term aims. Other committees of the Council have been consulted about these proposals and the Finance Committee concur in the proposals for these areas on the condition that they can be carried out within the limit of maximum annual gross capital expenditure of the order of £27 million estimated to be available during the twenty-year period for the whole Development Plan programme," the report adds.

Designation maps have been prepared for these areas.

Right : The nave, looking towards the altar.

Below : Vista from the old cathedral with the glass screens lowered, looking towards the altar.



COVENTRY CATHEDRAL

Shown in these pages are five new drawings by the architect of the winning design for the new Coventry Cathedral. The scheme has been approved by the three Ecclesiastic bodies concerned and on Wednesday was before the Coventry City Council for approval. The Royal Fine Art Commission has yet to consider the design.

BASIL SPENCE, O.B.E., F.R.I.B.A., F.R.I.A.S., ARCHITECT.

The new cathedral as seen from Priory-street.

A Hallowing Place.

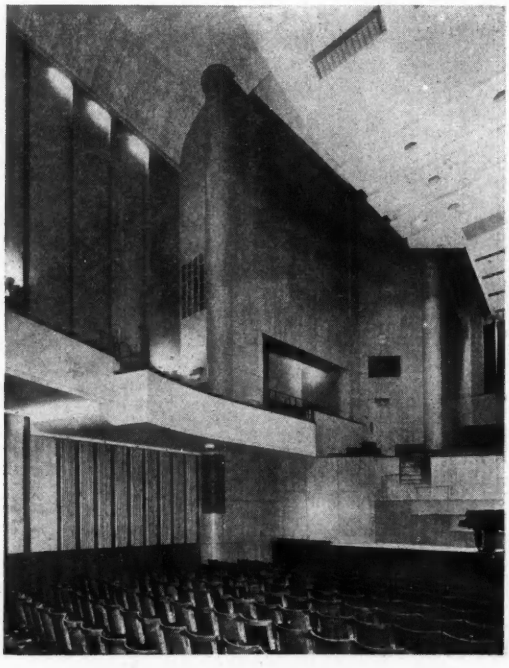
The Font and Baptistry.

THE NEW COVENTRY CATHEDRAL

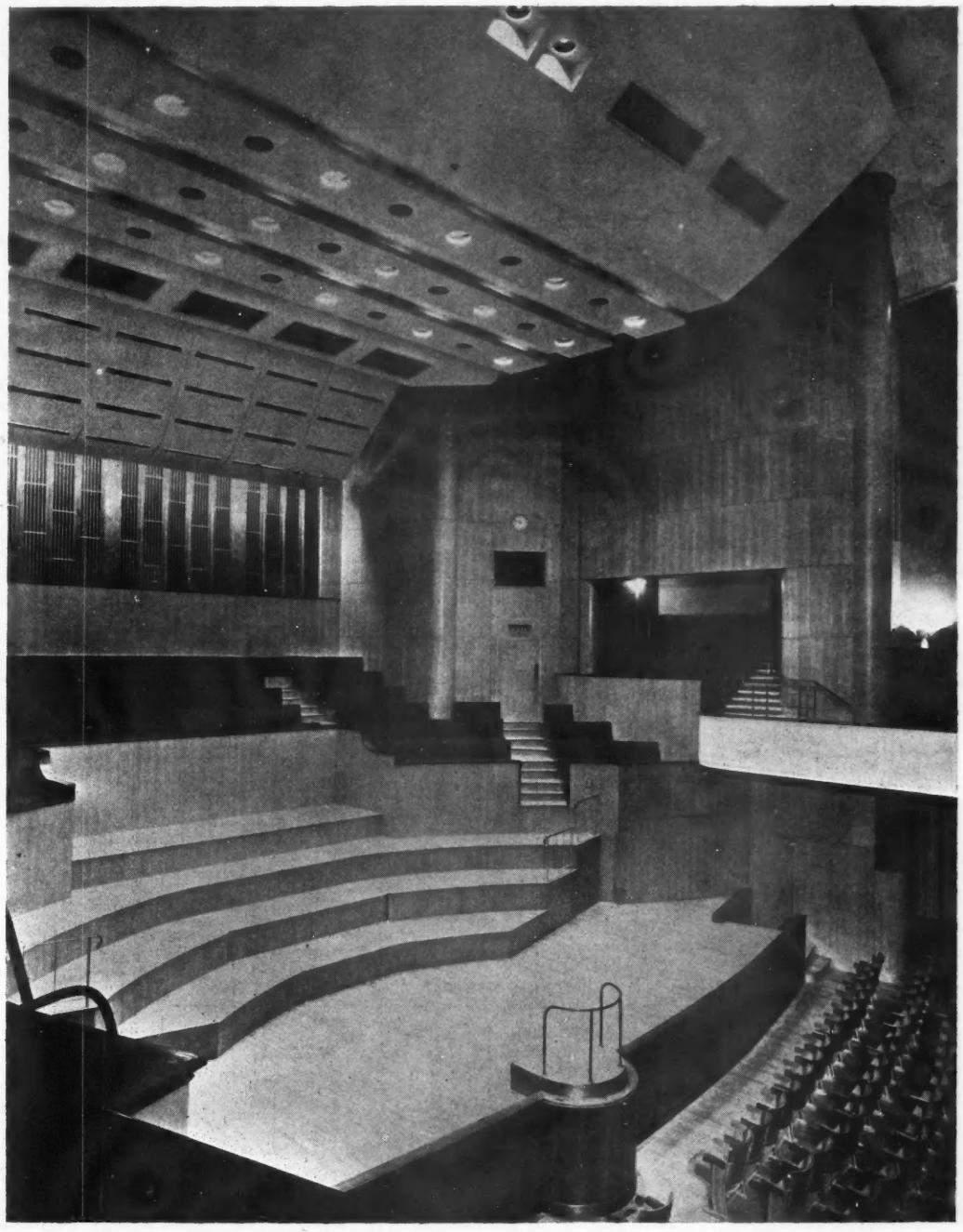
General view from the balcony. *Below: Side balconies and wall panelling treatment.*

RECONSTRUCTION OF THE COLSTON HALL, BRISTOL

J. NELSON MEREDITH, F.R.I.B.A., BRISTOL CITY ARCHITECT, with T. S. SINGER, A.R.I.B.A., A.M.T.P.I., Senior Assistant Architect in Charge, and S. G. HOWITT, L.R.I.B.A., and W. F. HOLLAND, A.R.I.B.A., Assistant Architects.



IN this scheme the architect has endeavoured to obtain a straightforward and direct architectural style embodying the free and flowing lines of contemporary architecture, combined with a subdued and dignified colour scheme. The shape of the hall has been largely determined by the acoustical requirements of a concert hall. As the auditorium is ventilated and heated by the plenum system, all old window openings in the original walls have been blocked up and special treatment has been given to the ceiling and roof to insulate the hall from outside noises. The corridor which runs round the main hall acts as a sound buffer and gives access to all parts of the building. In order to avoid a large overhang of the balcony, side



The concert platform from a side balcony.

balconies have been introduced, giving an intimate atmosphere to a concert hall of this size. The large areas of light chestnut panelling, rising to a height of 50 ft. around the concert platform, are designed to give the required resonance, and the panelling under the side balconies has been broken up into a series of convex shapes for good diffusion of sound. The auditorium side walls have panelling comprising vertical convex drums faced with chestnut veneer and relieved with 4 in. wide mansonia strips, while a 3 ft. 6 in. high dado consists of mansonia entirely. This panelling has been made removable to enable adjustments to be carried out to the acoustic properties if so desired, while the walls above balcony level are lined with saw toothed "Weyroc" panels with clear polished hardwood edges in red merenti. European oak strip floor has been

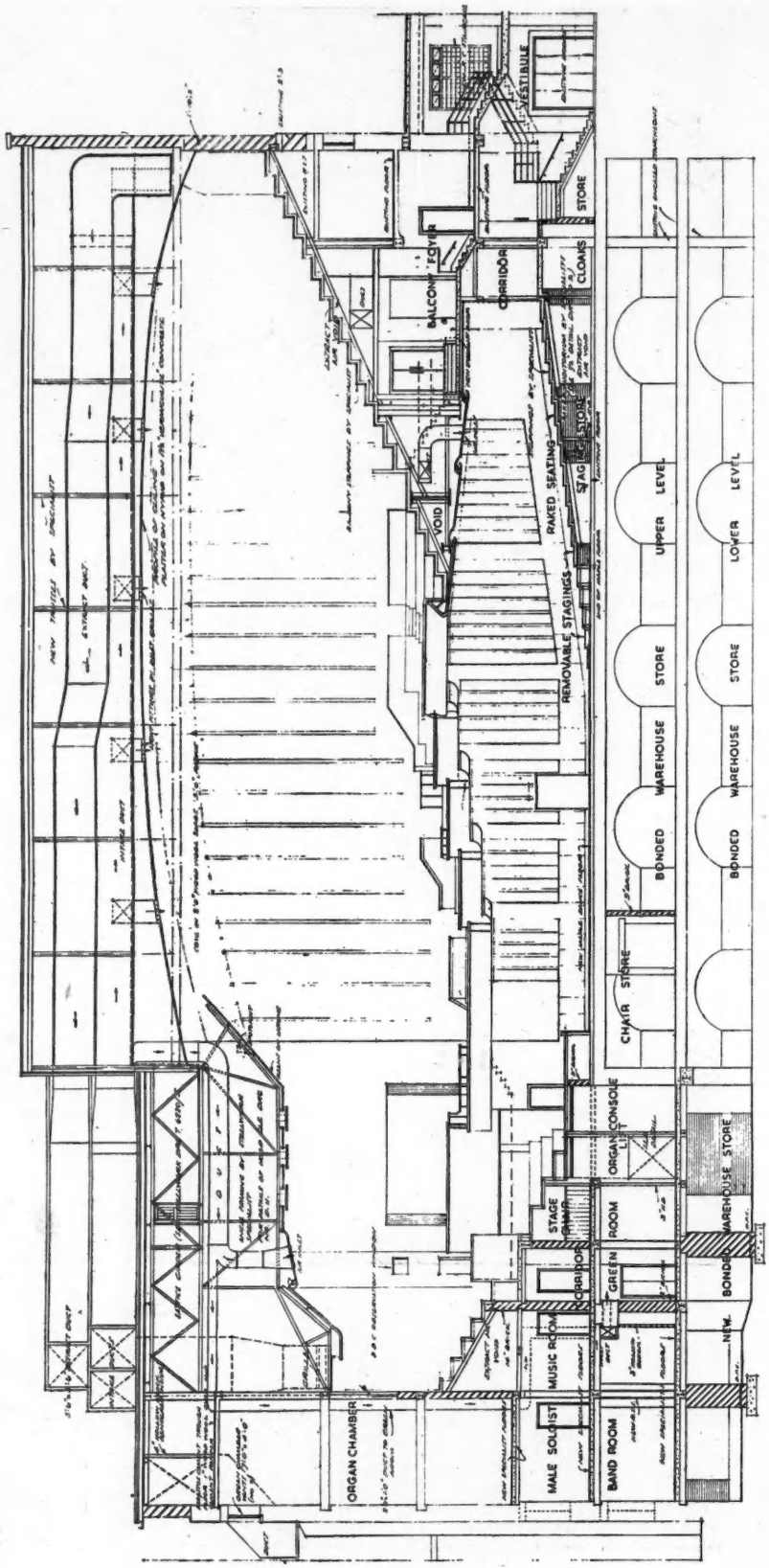
chosen for the concert platform. To reduce sound absorption, carpets have been omitted and soft furnishings kept to a minimum. The large canopy (partly in fibrous plaster and partly in *in-situ* plaster on metal lathing) over the concert platform is intended to reflect sound to the more distant parts of the auditorium. This canopy is designed also to return a proportion of the sound on to the orchestra itself, thus enabling the performers to hear the balance between their own instruments and the orchestra as a whole. The hall will seat 2,000 persons with room for an additional 182 in the choir seating. The front of the auditorium floor is level and has a polished strip flooring surface (in one of the lesser known Empire hardwoods, muhuhu, from West Africa) so that the hall can be used for dancing and exhibitions. Transportable chairs can be lowered and stored in space below. A section of the stepped portion of the floor immediately behind can be removed by sliding on rollers to the underside of the rear steppings to extend this area when necessary. It is intended to use the hall for boxing contests and a specially designed boxing ring has been constructed to fit partly on the concert platform and partly on the floor of the auditorium. Special flood lights are provided for these contests. Buffets for light refreshment have been provided on two floors. In addition to a large "green" room below the concert platform, various other dressing-rooms have also been provided.

The general contractors were Messrs. William Cowlin and Son, Ltd., the clerk of works being Mr. E. W. Giddings, M.I.C.W. Quantity surveyors were Messrs. Bernard and Son (A. G. Taplin, F.R.I.C.S.). The D.S.I.R. advised on acoustic problems and Hoare Lea and Partners were consultant engineers (heating and electrical). Sub-contractors were as follows :—

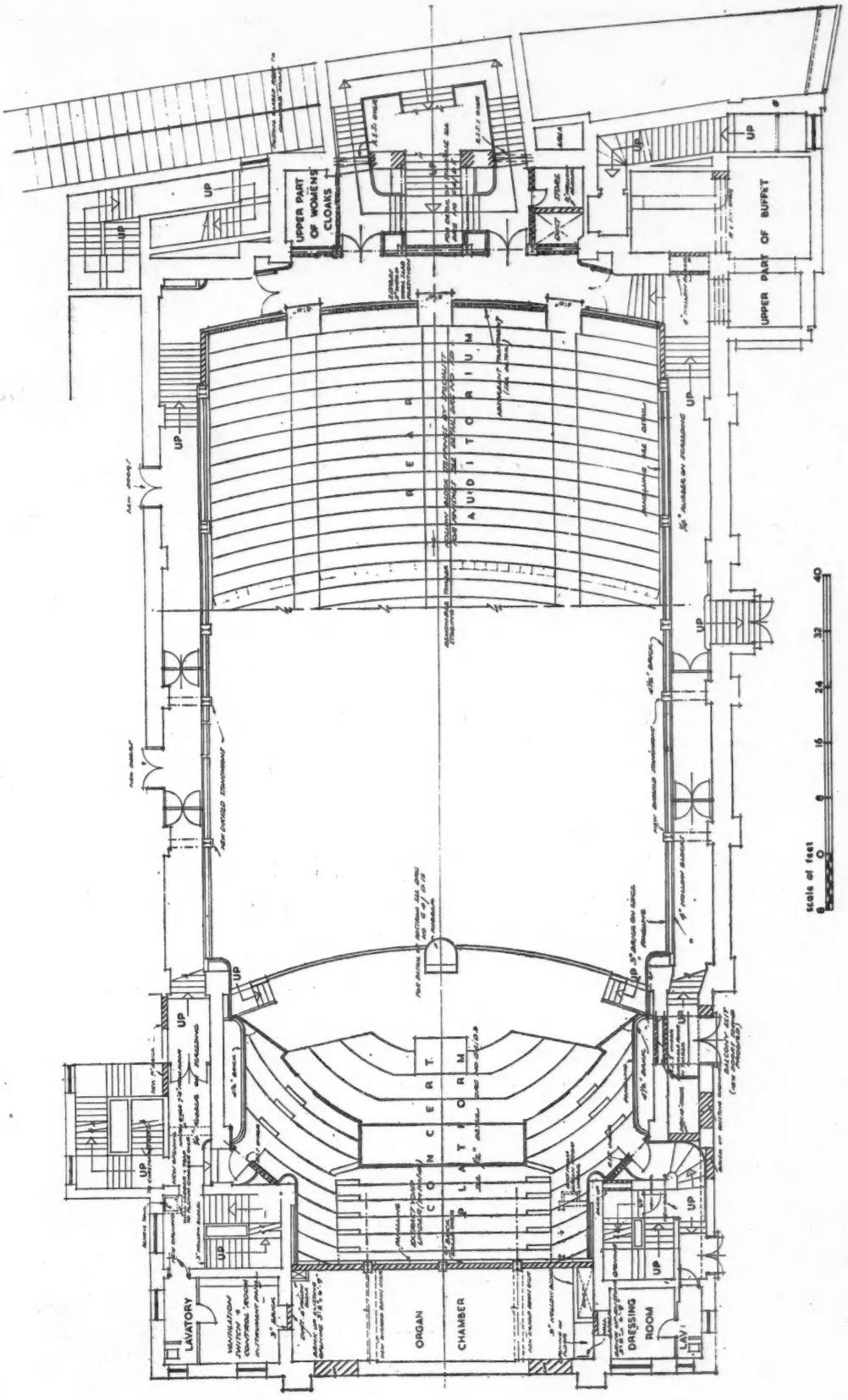
Structural steelwork (incl. design), Gardine Sons and Co., Ltd.; reinforced concrete floors, The Kleine Co., Ltd.; heating and ventilation, The Brightside Foundry and Engineering Co.,Ltd.; electrical installation, F. H. Wheeler (Bristol), Ltd.; seating, The Walturdaw Cinema Supply Co., Ltd.; tubular furniture, Neets, Ltd.; sanitary work, Mr. G. F. Tuckey; carpet in conductor's room, Baileys (Bristol), Ltd.; curtains, P. E. Gane, Ltd.; roofing, The Universal Asbestos Manufacturing Co., Ltd.

Terrazzo work, The Bristol Art Floors, Ltd.; absorbent ceiling cove, The Marley Tile Co., Ltd.; rollers under removable staging and boxing ring, F. and R. Edbrooke, Ltd.; decorative paints, The Imperial Chemical Industries, Ltd., and John Hall; door furniture and fittings, Gardiner, Sons and Co., Ltd.; dance floor, Horsley Smith and Co. (Hayes), Ltd.; concert platform floor, Stevens and Adams, Ltd.; sound nsulation to ducts, Newalls Insulation Co., Ltd.; doors, Southerns, Ltd.

Plaster work, A. C. V. Telling (Bristol), Ltd., and Gyproc Products, Ltd.; felt roofing, The Asphalte Specialists, Ltd.; metal lathing, The Steel Bracketizg and Lathing, Ltd.; handrails, balustrades and bronze rails, M. A. C. Engineering; floor finishes, Korkoid Decorative Floors; plaster motifs designed by Mr. E. Pascoe; coat of arms, H. H. Martyn and Co., Ltd.; fire alarm system, Gough Bros. (for Associated Fire Alarms, Ltd.); public address system, The General Electric Co., Ltd.; lighting fittings, Troughton and Young (Lighting), Ltd.; scaffolding, Scaffolding (Great Britain), Ltd.; coffee machines and boilers, W. M. Still, Ltd.; internal telephones, The Reliance Telephone Co., Ltd.; fire appliances, The Fire and Safety Engineers, Ltd.

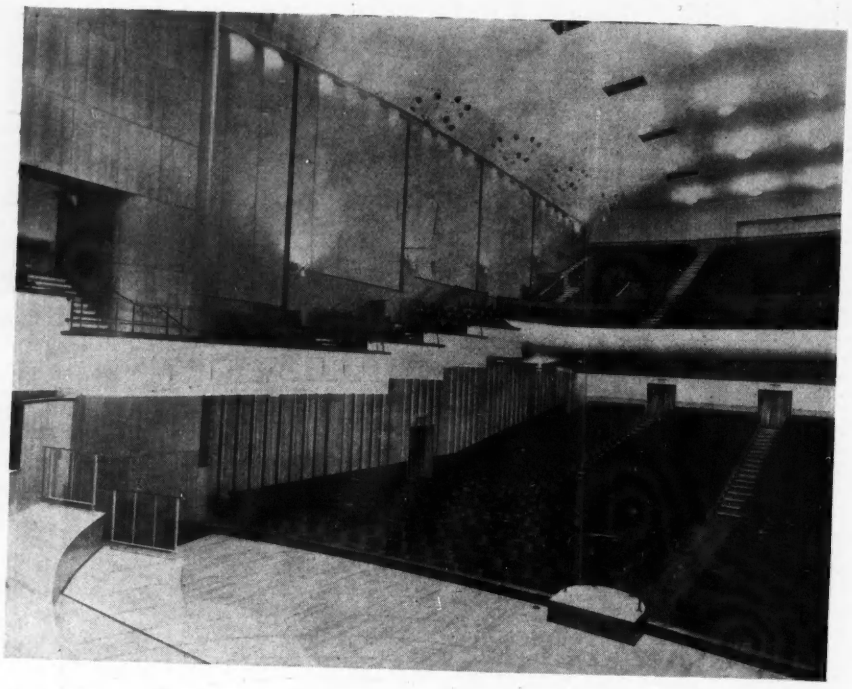


Longitudinal section.

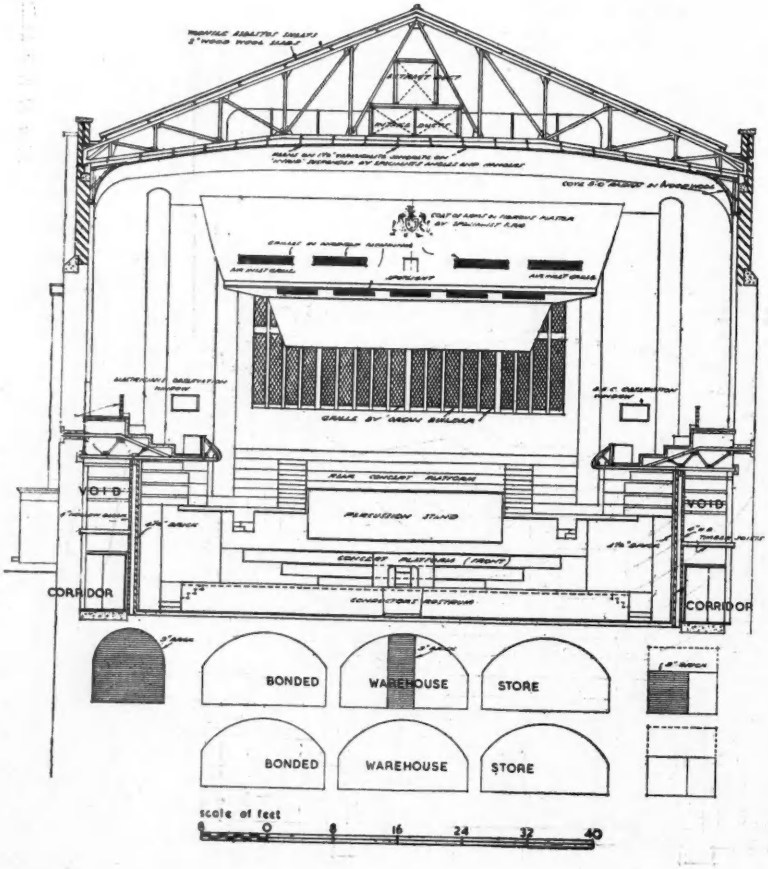


Plan at rear auditorium level.

Longitudinal section.



A view from the concert platform.



RECONSTRUCTION OF THE COLSTON HALL, BRISTOL.

Cross section through auditorium looking towards concert platform.

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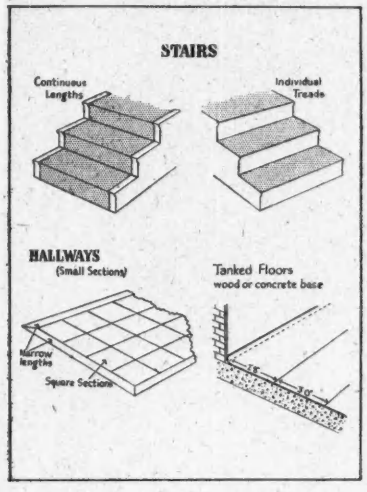
Continuous Non-slip P.V.C. Flooring

Laying ALTRO flooring

"ALTRO" Safety Treads have for some time past been supplied both in standard sizes for application to wooden and steel stairs and also in specially moulded treads to various transport undertakings, in particular the London Transport Executive, to provide a hard-wearing non-slip surface in those situations where accidents due to slipping most frequently occur, as at the front edges of steps. It soon became clear that a flooring with similar properties which could be laid over large areas in continuous lengths was also needed. This entirely new form of flooring which has the same properties as the Safety Treads has already proved itself to be of considerable value for use in many situations, where a satisfactory hard-wearing non-slip flooring has not hitherto been available.



Methods of utilizing ALTRO continuous flooring

"ALTRO" Continuous Flooring, which has been tested by R. H. Harry Stanger, A.M.I.C.E., A.M.I.Mech.E., M.I.Struct.E., F.C.S., has proven itself to stand up to the heavy wear of steel wheeled, heavily laden trucks better than granite paving slabs. Furthermore, it is unaffected by neat or dilute acids (except hydrofluoric), alkalis, and most mineral and vegetable oils. Incidentally, it has a very low Thermal Conductivity, therefore, combining the advantages of wear resistance, warmth and safety for use on wood, concrete or composition floors and stairs. This continuous flooring which is supplied in 2.5 mm. and 4 mm. thicknesses, 36 in. wide, in lengths up to 50 yards is easy to lay and will remain non-slip throughout its life. By the very nature of its composition which is "Altro" (aluminium oxide) abrasive grain bonded with "Wellite" P.V.C. plastic, it can never wear smooth and will stand up to the hardest wear in all situations except those exposed to elevated temperatures; even under conditions such as the corrosive action of a salt atmosphere combined with the effect of hot weather, such as the Safety Treads have to withstand when incorporated in the rolling stock which are being made in this country for the Ceylon Railways.

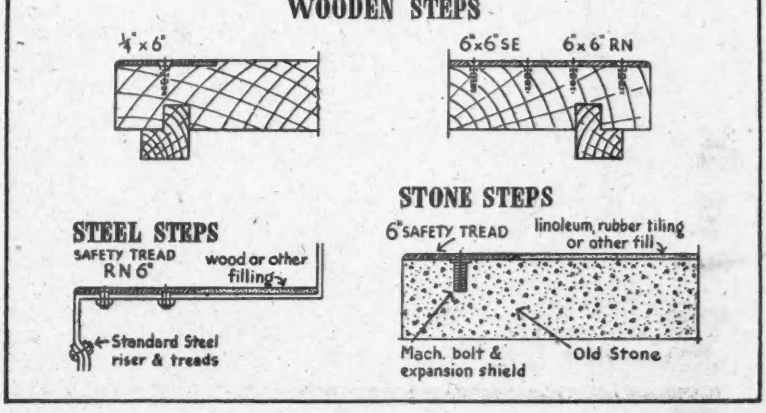
For use in factories, where liquid chemicals are likely to attack the under-floor, a jointing paste is available to provide a complete sealing of the joints between the adjoining widths of the "Altro" flooring. This paste which sets to form a cohesive seal has all the properties of the flooring and is supplied in the same colours, viz., buff, brown, red, dark green and blue. The flooring itself is fixed either with a suitable adhesive or if preferred where the sub-floor is wood, by tacking down. It is easily kept clean and remains non-slip wet or dry, thus being suitable both for domestic and industrial use. Because of its extraordinary toughness the 2.5 mm. material is now generally used—the 4 mm. only being required where there is continuous heavy trucking.

(Right) ALTRO non-slip treads in use on London Transport buses

"ALTRO" Plastic Safety Treads are supplied in ten colours—white, buff, brown, cream, grey, red, green, dark green, blue and black, 5/16 in. thick. The standard widths are 4 in. and 6 in., in lengths up to 2 ft. 9 in. It will shortly be available in sheets of 1/8 in. and 5/16 in. up to 2 ft. 9 in. by 2 ft. 0 in. Being completely non-porous they cannot be bedded in cement mortar but are usually screwed down or set in a mastic. Special sizes and shapes can be supplied where the demand is large enough to justify the construction of the moulds.

Both these materials are products of The Adamite Company Limited, Manfield House, Strand, London, W.C.2.

Methods of incorporating ALTRO Safety Treads



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CORRESPONDENCE

"VOCATIONAL ORGANISATION": OFFICIALS AND PRIVATE PRACTITIONERS

To the Editor of *The Builder*

SIR,—This phrase has been in use since 1917, when Sidney and Beatrice Webb published a short study of the subject. Since then there has been a great expansion in the number of trades and professions and in the composition of such bodies. New bodies have been formed in consequence of new discoveries. There has also been a change in composition of bodies due to nationalisation of iron and steel, medical and dental practice. This changes the fixing of fees in medical practice and dentistry by the professional organisations to control of remuneration by the State.

When professional bodies were first formed they were almost wholly private practitioners and their fees or remuneration were governed wholly by their own institutional resolutions. The earliest came to be known as the three "learned professions"—lawyers, doctors and theologians. Since then the appellation has lost its significance; it ought never to have been adopted—in view of the high standards of knowledge and responsibility required by complex utility schemes.

With the development of the powers of local authorities and the expansion of government officials the composition of professional bodies has greatly changed. To be specific, about one-half of the members of the Royal Institution of Chartered Surveyors (of which I am a Fellow) consists of officials, and I should think that a similar proportion holds good for Civil, Mechanical, Electrical, and other less numerous bodies. It follows that the institutions fix the fees or remuneration of only one-half of their members, the salaries of the other half being fixed by their employers.

If a Labour Government continues in power, we may look for further expansions of Nationalisation with still further increases in the proportion of officials in most professions and in industry.

It is easier to fix the salaries of officials than to determine the fees of private practitioners. The latter are dependent upon the vicissitudes of fortune with consequent considerable variations in the amount of their earnings. It is necessary to have a code of conduct to control private practitioners, which is prescribed by the councils of institutions, but the conduct of members holding official positions is prescribed by their employers. There are official bodies known as Whitley Councils which have official sides and staff sides, and I should not be surprised if professional bodies were divided into separate official and private sections or more probably perhaps if all the official members of all institutions were incorporated into one body or possibly absorbed into Whitley Councils.

With regard to examinations which are a *sine qua non* of membership of older institutions, the examinations make no distinctions between those students whose aim is for official positions and those whose aim is private practice. It seems clear that if the members of all institutions were divided into two groups, that the examinations would vary more than they do now. To illustrate this point it may be said that the work of officials consists of much larger schemes than the work of private practitioners. In sewerage systems, water supplies, gas and electricity works, an official deals with schemes for villages, parishes, boroughs and county councils, but the private practitioner deals only with small schemes such as connection of supplies to houses, factories or institutions.

The Eire Report of the Commission on "Vocational Organisation" advocated the formation of a National Vocational Assembly consisting of six national representative bodies, viz.: for agriculture, industry, commerce, transport, finance and professions, with a total of 120 members, of which 20 were to be co-opted. The report recommended that the Assembly should choose triennially from among its members a governing body of not more than 24 persons. These should be selected from the different vocations as follows: Agriculture, 8; Industry, 4; Commerce, 2; Transport, 2; Finance, 2; Professions, 2; and co-opted, 4. It recommended that "The governing body should establish an office, meet frequently, carry out specific tasks delegated to it by the Assembly, conduct investigations, and deal with the routine administrative duties of the National Vocational office."

With the realisation of the idea of a world united into one organisation (U.N.O.), it follows that its inhabitants should be formed into appropriate groups, so that all may be usefully employed, and their numbers regulated according to the economic needs of the whole population.

A. W. CRAMPTON.

8, Woodchurch-road, N.W.6.

COMPETITIVE TENDERING

To the Editor of *The Builder*

SIR,—"Chartered Quantity Surveyor's" letter in your issue of September 28 surely contains the most remarkable of all suggestions: No main contractors, only sub-contractors; the whole job to be organised and dealt with by a clerk of works.

Your correspondent claims that this has been done in the past, but it is observed that the adverb "successfully" is missing.

Surely in these times, with the organisation needed, and the innumerable complications that arise, the clerk of works does not exist who could be expected to carry out such a task on any but small and uncomplicated jobs.

Your correspondent's letter finishes by mentioning that the saving of general contractors' profit on specialist work should go a long way towards meeting the cost of the clerk of works and his staff. If it only goes "a long way" instead of securing a cheaper job, then what is the purpose of it all?

Incidentally, I do not know where the quantity surveyor comes in (if at all), but I could visualise an appalling task in dealing with such a matter as the final account—or perhaps 20 accounts.

THOS. V. HUTCHINS,
Quantity Surveyor.

22, Oakley-square, N.W.1.

RESALE PRICE OF HOUSES BUILT UNDER LICENCE

To the Editor of *The Builder*

SIR,—Regarding Mr. Chilton's letter (your issue September 28), and Mr. MacDonald's reply which has brought in a doubtful and irrelevant point regarding one's rights if driven to a court of law (not by taxi), I have recently completed three houses which had a fixed selling price based on bills of quantities priced in 1949. The contract included the rise and fall clause, so of course the contractor will be entitled to increased costs of labour and materials over and above the rates included in the Bills of Quantities. I am informed that under certain circumstances the selling price can be increased provided the standard has not been improved and that design has remained as planned. In other words, the net increase of wages and materials beyond the control of the contracting parties.

In my case, however, the design and scope was altered and although my plea to the local authority concerned has not been completely negatived, the position has further been complicated by the sale of the houses. I do heartily agree with Mr. Chilton that an anomaly is created and that there should be a "rise and fall" clause in the selling price amount determined by the Local Authority when application for a building licence is made.

S. C. CLARK.

3, Nepean-street, S.W.15.

To the Editor of *The Builder*

SIR,—The correspondence on this subject shows the chaos to which shortages and controls have brought us. Normally a house would fetch its market price; to-day, price is often determined by considerations which have no relation to intrinsic values. Rationally there is no case for fixing the price of a house built under licence, as described by Mr. E. R. Chilton. The only object of such price fixing is to stop speculation in house-building at a time of shortage. The argument, presumably, is that public opinion would be outraged by the right of someone making a profit out of a newly built house, though there is no official objection to making one out of an uncontrolled house built long ago. For example, a small house in south-west London built for £100 or less a hundred or more years ago, sold recently for £1,500.

It is utterly illogical to say that the price of a new house must not be allowed to keep pace with money values, for if the owner of the house mentioned by Mr. Chilton wished to build another of comparable class he would have to pay the current increased price. The capital appreciation on the existing house is in effect a gift to the new buyer, who may be a good deal better off than the seller.

I agree that the selling price of a house

should be subject to a percentage increase based on prevailing building costs, if in fact they are higher. The aim, however, should be to get back as quickly as possible to a free market.

HARI BONA.

HANDLING OF MATERIALS

To the Editor of *The Builder*

SIR,—The fact that the subject of this letter has been discussed previously so many times can but serve as an indictment against those who should have acted long years ago, but, alas, appear to have done little.

The building industry or craft has existed, in some form or another, from time immemorial. Perhaps for this very reason, there is a tendency to cling to archaic principles — "what was good enough for dad is good enough for me."

Other industries, being younger, and providing more scope for scientific development, have reduced productivity to a fine art, without loss of quality. Time and motion study has revealed minute wastages—a box of parts placed on the operator's left instead of right hand; a press travelling 6 in. when 3 in. would be adequate, and so on.

What excuse can the building and allied trades offer for the inexcusable time wastages which exist to-day? Trace the path of the humble brick. Check the number of times it is handled from works to wall, arch, or wherever its final home may be. Count up the man hours employed in loading, unloading, stacking, hod filling, and finally placing on to the scaffold. Look at the scaffolding itself. Is this the best man can design for, shall we say, housing work? The surface of mechanisation has not been scratched. We are developing new materials and modern techniques for applying them, when we have not learned to use our existing resources efficiently.

A hoist is regarded with reverence akin to idol worship. "One hour more," says the General Foreman, "and no longer. Look at the cost—it's eating the profits up in chunks."

The unschooled might be tempted to look for gold plated fittings, or a diamond studded jet engine to drive it. Others simply shake their heads and remove it from site to a place of greater safety.

There is, indeed, much work left for research into time and motion study in the industry, which would benefit both managements and workers. Manufacturers should consider the eventual application of their materials, and thus the most suitable way of handling them both at works and on site. An army of labourers behind each craftsman merely reduce the eventual output per man hour, increase the overall cost of the job, and delay completion. This, in its turn, aggravates the labour shortage, encourages the use of half-trained operatives, resulting in ever-worsening standards of finished work. We have a lot more to do before considering emigration from "a land of fading opportunity."

A. W. HUDSON.

2, Menelik-road, N.W.2.

NEGLIGENCE AND THE ARCHITECT

By NORMAN P. GREIG, BA, Barrister-at-Law, FIArb

"NEGLIGENCE" is often defined as "not doing what a prudent man could do, or doing what a prudent man would not do, when under a duty to take care, and damage results to someone."

As an architect holds himself out for reward, i.e., practises his profession, he is under a duty to the person who employs him to use his care and skill to the utmost, which is not to say that he is expected to have the highest degree of skill, for that is only possessed by the very few. The effect of not doing so is, to begin with, the breaking of the contract with the employer, and the result can be that he is liable to dismissal, to forfeit his right to be paid under the contract and also for any damage suffered by the employer as a result of his incompetence or negligence.

But in order that his liability shall arise: (1) It must be shown that the damage (or loss) was caused by the negligence; so, if advice is given by an architect, it must actually be acted upon before liability arises; (2) The damages for omission to use proper care and skill where there is negligence, when proved, are measured by the consequent loss to the employer. It does not matter that the damage or loss exceeds the amount of the commission or fees agreed to be paid; (3) The action can be brought directly by the employer for damages, or can consist of an answer to a claim for fees by way of counterclaim. It is also open, in an extreme case, for the employer to sue for the return of fees already paid, on the ground that they were paid on a consideration that has wholly failed, or for negligence.

An action for negligence, then, will arise when an architect is acting as agent for an employer, which is the capacity in which he acts under a building contract. But it must be borne in mind that, apart from the building contract in which he is very often definitely named as architect for the job, there is also a personal contract between him and the employer under which he gives his services. This contract is sometimes written, or can be evidenced by some writing, but very often it is implied by the acts of the architect, and often, apart from this, the only evidence of it is an entry in the architect's notebook.

ARCHITECT AS ARBITRATOR

When an architect, on the other hand, is not functioning as an agent but is acting as a quasi-arbitrator, then he is not open to an action for negligence, which does not lie against an arbitrator; though an arbitrator can be attacked in other ways as, for example, for legal misconduct, and, in certain circumstances his award can be impugned for "error in law on the fact of it," but the law suggests that when two parties choose an architect it is up to them to choose the best person for the job, or take the consequence of his incompetence, and their lack of judgment.

When an architect gives his final certificate, it cannot be questioned on the score of negligence, and when the architect certifies his approval of the contract work, which is usual in a building contract, the employer is precluded from bringing an action against the contractor for latent or even patent effects unless, of course, there is fraud or collusion. An architect should always be careful to avoid over-certification, even in an interim certificate, which has no finality and can be adjusted in the final settlement, but circumstances, like the bankruptcy of the contractor soon after receipt of a payment under an interim certificate may involve an employer in serious loss.

In the well-known case of *Rogers v. James* ((1891), 56 J.P. 277), an architect was engaged to superintend the building of a house and the contract provided that his decision on all disputes arising out of the contract was to be final and binding on the parties. When the architect claimed the balance of his fees from the employer, the latter counterclaimed for negligence on the ground that the architect had failed to deal with certain omissions. The architect claimed that when he had given the final certificate he had deducted a certain sum for the omissions, and that the employer was not entitled to reopen the matter as his (the architect's) opinion was final. At the hearing, the jury found for the architect on the claim (for his fees), and for the employer on the counterclaim (negligence). On the architect moving for judgment or a new trial on the counterclaim, the Court held that the architect's certificate was final as between Employer and Contractor (under the building contract), but not as between Employer and Architect (under the contract between Employer and Architect).

THE ARCHITECT AND THE INTERIM CERTIFICATE

As a rule, the interim or progress certificate is of the nature of *qualified approval* by the architect of the work already completed when the certificate is given. Let it be clear that the giving of such a certificate does not prevent the employer subsequently questioning the quality of the work so approved, nor the architect from refusing to give his certificate of complete satisfaction later on.

It was held in *Wisbech U.D.C. v. Ward* ((1927) 2 K.B. 556 and (1928) 2 K.B. 1 C.A.) that an architect under a building contract is not acting as a quasi-arbitrator when he gives an interim certificate, but as agent for the employer (and therefore liable for an action for damages for negligence in a proper case), unless there is some clause in the contract itself that contradicts the assumption of agency. It is the duty of the contractor to give the certificate according to his own conscience and in accordance with the contract. He must not be influenced by the employer, or follow his wishes in any way in regard to the matter so that his judgment is affected. (*Hickman v. Roberts* (1913) A.C. 229, H.L.)

In the later case of *Shipwright v. Lidiard* (1931) (reported in *The Builder*, July 10)

an architect had recommended and advised the defendant to use a certain material for the construction of walls and internal partitions, some of which had not matured properly before use. He was held liable for negligence to the employer because the blocks of the material had become defective through shrinkage. Interim certificate had been given, and the contractor had been called upon to remove the unmatured blocks as a condition to the giving of the final certificate.

THE ACTION FOR NEGLIGENCE

It was said, in *Chapman v. Walton* (1833), 10 *Bing.* 57, that, where no extra degree of skill is contracted for, the fact that five out of ten skilled and experienced members of the same profession as the defendant would have done the same thing or come to the same conclusion as that complained of as negligence, will entitle the latter to the verdict. Be this as may be, the acts of negligence must be strictly proved for an employer to be successful.

To sum up, the following rules can be abstracted from the cases, in regard to the position of professional men :

1. " Every person who enters a learned profession undertakes to bring to the exercise of it a reasonable degree of care and skill."

2. Persons, by holding themselves out as, say, architects, surveyors, etc., represent themselves as understanding the subject and that they are qualified to act in the business in which they profess to act. In fact, there is an implied warranty on their part that " they are of skill reasonably competent to the task they undertake."

3. In regard to matters in which an architect was employed merely as agent for the employer, he was to protect the latter's interests . . . and would be liable to an action if he acted negligently.

4. Not only must the architect possess requisite skill and knowledge, but he must use the greatest care to appoint proper employees to assist him in his business.

5. He is not expected to be more than abreast of the times ; if the employer is wishful to use some novel material or method of construction with which the architect is unfamiliar, let him be careful not carelessly to give his approval ; and if he disapproves, but is overborne, he should express his disapproval to the employer in writing.

HOSPITAL MAINTENANCE

" Architects Should not be in Charge "

IN a presidential address to the Institution of Engineers-in-Charge in London on Wednesday, Mr. Robert Chalmers, M.I.C.E., M.I.Mech.E., president of the Engineers' Guild, criticised the practice of hospital boards in putting an architect in charge of maintenance of hospital premises.

He said this would inevitably lead to unnecessary burdens on the country's fuel resources by the installation of electrical heating devices without due consideration of the real requirements. The £100 per hospital saving which the Minister had recently urged was, he believed, only a fraction of what could be saved without detriment to the service if real opportunity was given to the engineer.

The architect's distinctive function concerned with planning and æsthetics of buildings had practically no application to maintenance. The system whereby an engineer was required to report to the regional board on proposals estimated to cost more than £1,000 was stultified and frustrated when the most senior engineer available at regional headquarters was a comparatively junior assistant in the architect's department.

Supervision of the engineer by an architect could add nothing to the value of the engineer's work.

ELECTRICITY BOARD FOR TRIAL

West Riding Magistrates' Court's Decision

AFTER a hearing lasting seven days the West Riding Magistrates at Leeds on October 4 committed the Yorkshire Electricity Board, as a corporate body, for trial at the next Leeds Assizes on eight summonses alleging the contravention of Defence Regulation 56a by carrying out unauthorised building operations at their headquarters at Scarcroft, near Leeds, to the extent of £41,217.

Col. W. M. Lapper, chairman of the board, and Mr. Frederick Newey, the deputy chairman, were also committed for trial on eight summonses accusing them of aiding and abetting the board in the commission of the offences.

The summonses against Col. Lapper and Mr. Newey, originally similar to those against the board, were on October 3 amended to aiding and abetting.

The board, the chairman and deputy chairman all pleaded not guilty, and reserved their defences.

On October 3, Ernest Van Ham, chief accountant of the Yorkshire Electricity Board since 1948, in reply to Mr. D. O. McKee (for Col. Lapper), said that in his accounts there was no differentiation between expenditure on items which required authorisation and items which did not require authorisation. From his point of view as an accountant, there was no point in such a differentiation.

Mr. Van Ham said that the Yorkshire Board, on or since vesting day, took over 42 municipal undertakings and eight companies.

Answering Mr. J. R. Cumming-Bruce (for the prosecution) he said that so far as the functional control of the department was concerned, he was given a great measure of freedom.

With regard to the expenditure at Scarcroft incurred during the financial year ended March 31, 1950, he could not say precisely when an independent firm of accountants was brought in to scrutinise the accounts, but an interim audit was carried out during the year.

Chief Inspector H. Verity, of the West Riding Police, Wakefield, said that on July 10 last he attended a meeting of the Yorkshire Electricity Board.

He told the Board that he was of opinion that contraventions of Defence Regulation 56a had been committed, and that he was submitting a report to the Director of Public Prosecutions with a view to proceedings being instituted.

He cautioned the board as a corporate body, and produced a copy of the financial statement prepared by their chief accountant.

Mr. Preston, the board's solicitor, replied that the board had nothing to say at that stage—they accepted the accounts as certified and the plans submitted. The inspector said that the same day he saw Col. Lapper and cautioned him.

Col. Lapper said that he would read the file, and on his return from London he would arrange for his secretary to prepare an explanation. Later the same day, said Inspector Verity, he saw Mr. Newey and after cautioning him asked him if he wished to make a statement. Mr. Newey said that he would prepare his explanation later.

On August 21 he served summonses on Mr. Newey, and on August 27 on Col. Lapper.

On October 3 Mr. George William Warrilow, master builder, of Leeds, whose firm carried out work at Scarcroft, said that his final account to the board was £39,006, for which about £1,000 was for repairs and maintenance.

On October 1, Mr. L. T. Appleyard, L.R.I.B.A., who was appointed architect to the board on the extension work, was questioned by Mr. Cumming-Bruce about a plan, later known as " Plan 204," of the work at Scarcroft. Mr. Appleyard said he believed that pencilled notes on this plan were in the chairman's handwriting. One note read: " Could this be a light partition so that the dining room may be extended? " and another read: " Passage is wasted—enter kitchen through dining hall." Mr. Appleyard said that when he saw these queries the drawing was amended, and, as " Plan 204," it was distributed to all the chief officers to find out their requirements.

Was the dining room built in accordance with the dimensions on Plan 204?—Yes, sir.

Mr. Appleyard, re-examined by Mr. Cumming-Bruce, said that the target date for Scarcroft (" D "-Day as they knew it) was always May 2. The March 31 target was an optimistic one, given to the contractors with a view to speeding up the work, so that a month could be spent in moving in and a month cleaning up in readiness for the expected visit.

(This was a reference to the visit of Lord Citrine and other officials to Scarcroft.)

Earlier in the proceedings of the case, Mr. Cumming-Bruce had submitted, for the prosecution, that the board, having applied for a certain amount of building, and having been told by the Ministry that that building must be modified and reduced, and having got the authorisation modified and reduced, then proceeded to disregard the condition.

Mr. Cumming-Bruce said that, with regard to the outbuildings, no authorisation was applied for, and none was given. The case for the prosecution was a simple one—that these outbuildings were demolished, moved to a new site, and reconstructed without any authorisation at all, the sum involved being in round figures £1,500.

The effect of Defence Regulation 56a was that at all material times it was the statutory duty of the Board of any public utility undertaking concerning the supply of electricity, to apply to the Minister of Fuel and Power for authorisation of any alteration in buildings, if that alteration exceeded the value of £1,000.

As to the expenditure for repairs and maintenance, the law was that work of this character did not require an authorisation from the Ministry. What did require an authorisation was work which was new construction or reconstruction, or alteration of existing buildings.

STEEL AND STONE IN ARCHITECTURAL DESIGN

Materials as the Governing Factor in the Appearance of Buildings

The following extracts are taken from a talk by Mr. Anthony M. Chitty, F.R.I.B.A., A.M.T.P.I., in a recent series of broadcasts in the Third Programme of the B.B.C. on Architecture and Design.

IN this series of talks you will hear a great deal about the design and outside appearance of buildings and other things that surround us, about the good or bad aesthetic of our modern world. If you think about it you will agree with me that it is the actual material, whether natural, processed or synthetic, of which things are made, whether it be houses or furniture, park benches or lamp-posts, motor cars or railway trains that is the governing factor in their appearance. The materials of building, like those of factory-made goods, have changed their character greatly in the last few hundred years.

It is about these building materials that I am going to speak tonight. They are the real tools of my trade as an architect just as other materials are for the industrial designer or the railway engineer—they inevitably determine the appearance of the building or product created. If I deal mainly with building it is because it was in the field of building materials that our greatest aesthetic opportunity lay in the past and where I think it has sometimes not been fully grasped.

In motor car design it's true we must acknowledge (a little grudgingly perhaps) that there is a certain quality in the sleekness of American technique—there is beauty with the borax, the too-often-vulgar is tempered with a childish and rather charming delight in skilful use of new materials. But can we say the same at home of our rows of "prefabs," of the standard sprawl of boxes we call housing, of our courageous school design? I think not.

No, over the last 30 years or so in spite of the great range of new and old materials available for building, somehow, except on rare occasions, we have missed the chance to choose and handle materials to their best advantage.

Let us consider for a moment this choice of materials for a building. The material must be fit for its purpose; it must be reasonable in cost, and it must have the qualities to give a good appearance.

Fitness for purpose is a broad phrase, for the way a material is used will vary as the years go on, and with our growing experience of it. For instance, iron, which in former years was used only as heavy cast beams and columns, then later as rolled steel sections, is now widely used as well in thin steel sheets pressed and folded into various shapes for strength. And, of course, stone, wood and earth have each gone through three distinct phases in their use for building. In early times they were used directly from their natural source, and when these natural materials were in position, they were decorated with mouldings, patterns, carving or painted figures, or words or plain colours. Later, of course, with growing ingenuity, we learned to process these materials, to improve their use—clay was baked into bricks, tiles and drainpipes; lime was burnt for plaster; steel, cement, and glass slowly evolved through the fierceness of fire.

The final stage to-day is more complex still. The production of many new materials by synthesis, a reconstruction of constituent parts, as in the case of artificial stone or terrazzo, many plastics, sheet materials such as asbestos cement and galvanised iron; the same is true of the new range of materials with a dual purpose, that of walling and insulating; as wood-wool slabs, vermiculite, cork and foamed slag blocks. From this it will be clear that the range of materials available is greater to-day than in the past, but with this goes the added difficulty of discriminating between one new and comparatively untested material and another.

The great change that has taken place in our use of materials over the last thousand years is this: in former times the materials of building were our masters, to-day we are the masters of our materials. To-day we think first of the requirements for a building in terms of space, the volume and dimensions needed for a factory say, or a house, and then proceed to clothe that space with the materials best suited to its size and shape and use—the opposite process that is from that of stone-age man. We are no longer bound to put stone on stone, but can bridge great spaces with a skeleton of steel and on it stretch a skin of whatever material we choose. The great Brabazon hangars at Bristol, with their 300 ft. clear spans and their folding doors 1,000 ft. long show this, and again the Dome of Discovery, that inverted aluminium saucer as big as Bedford-square.

IMPORTANCE OF COST

After fitness for purpose, I suppose cost is the next important principle in selecting materials. In every age economy has been a potent factor—indeed with some activities, housing for instance, the problem is far more a financial one than a technical one; with housing the relationship of rents to first cost is all-important. There are some materials, however, such as cement and certain bricks that we make which though inherently cheaper than most other materials, at the same time lack, I think, intrinsic beauty, and to overcome this may involve considerable extra cost and effort. Before the war there was a tendency to economise too much, particularly on external materials, and many of the modern buildings have suffered in consequence and now look shabby.

The third, and the most interesting factor in choice, is naturally that of appearance. In this wide word I include all the visual characteristics of a building—its colour, texture, light and shadow effects, its decoration and its relation to the scene in which it stands. All these attributes of course derive from the sun, either by its direct rays or by diffused skylight, and it is interesting to notice that whereas the older well-loved materials such as stone and brick are not highly reflective, some modern materials are—sheet steel and painted surfaces, chromium plate, or glass as in some recent stores and office blocks in London. If this trend, which is I think the result of a search for durability combined with easy maintenance, were to extend would not life in the town become increasingly harsh and unbearable? There is much to be said for the light-absorbing qualities of old buildings. It arises, of course, from the roughness of the surface, a surface full of minute pockets of shadow, and these same pockets give support for plant life. And so arises decay, in moderation a blessing for "well weathered" means in a state of partial decay with rich gold and green and grey lichens upon the surface.

DECORATION OUT OF FORM

Weathering and the effects of light are both phenomena of nature, but there is also the beauty that we can add. To me the most satisfactory sort of decoration to a building is that which grows from its very form—a modelling of light and shadow in the building itself, contrasts of colour in the varying materials, patterned surfaces arising not arbitrarily but from some inward necessity of the building's plan and content. This type of beauty has a long history behind it. When in the 'thirties we cast off the bonds of an over rigid stylism, a stylism which had lost all meaning, the functionalism that followed was excessive; it gave an architecture too abstract, too naked and certainly too hasty in its choice of materials. Since the war, in spite of restrictions, there has been a marked expression of a desire for more colour, texture and other forms of decorative value, and this is an encouraging sign for the architecture of the next few years. At the South Bank Exhibition especially we can see this trend.

Buildings cannot be thought of alone, however, for the roving eye sees always the house in relation to the square or street, or with its neighbours, and then again related to the grass and the trees, and sky. English architecture of the eighteenth century was only part of the great landscape tradition which moulded the countryside that surrounds us today, and trees and hills, rivers and lakes, as well as buildings were made to bow to the will of the architect. We lost this great facility for handling materials in a big way during the frenzy of the industrial era. It is important to-day to try to recover some such broad and sensitive approach, now that we have to handle large-scale problems of housing sprawl, the layout of new towns and the acres of vast industrial plant. In a smaller, but more complex way, the designers of the South Bank Exhibition have tried their hand, successfully, I think, at grouping buildings harmoniously together and at the same time bringing the more distant features of the view into the picture, such as Whitehall Court, the Houses of Parliament and the river itself.

It may be that economics and the growing housing shortage will bring about a double-decker type of architecture, where all our traditional materials and craftsmanship will be used in the construction of public buildings of great permanence, while houses so badly needed suffer the process of rigid standardisation and mass-production, until they come to us off the conveyor belt like consumer goods. Such a differentiation has already taken place in factory buildings—the grand old nineteenth-century mills of the Midlands or the Stroud Valley were monuments in themselves, architecturally fine; within them the workers handled comparatively simple plant. Now the plant and services of a factory are often infinitely more valuable and complex than the building that gives them shelter, and it is, therefore, sound business policy to prune the building shell or skin so as to make walls and roof with the greatest adaptability to allow the precious plant within to change and grow and change again.

CONCLUSIONS

What conclusions can we draw from these thoughts about the materials of building—old and new? First, that material is still the great dictator of design, as it has been throughout the history of architecture. Next that in choosing our material, there is no substitute for time as a guide and guardian to our choice. There is the difficult lesson also to be learned that the newer materials, especially those that are factory-produced from reconstituted elements, are by their nature far more difficult to use successfully than the older well-tried range. Architect and manufacturer must closely work along together on the problems of these products to hasten their correct development. Lastly, and this, I think, can be clearly descried in the fine pavilions of the South Bank Exhibition, the gulf of specialisation that exists between architect, engineer and scientist, as well as between men of design and men of execution, grows gradually less wide. It must be well bridged if we are to bring about once again a true union of science and art.

BUILDERS' CLERKS' DINNER

Revision of Rules

TRIBUTE to the president, all past-presidents, the committee and officials of the Builders' Clerks' Benevolent Institution, was given by MR. GORDON T. TAIT, F.R.I.B.A., at the sixty-fifth annual dinner of the Institution, held at the Café Royal, Regent-street, on October 9. He hoped that they would not see the day when voluntary work was no longer part of our national life. This year's president, MR. W. KIRBY LAING, M.A., A.M.Inst.C.E., thanked all those who had contributed to his appeal, which had so far realised £1,170. He went on to say that it was essential to keep up to date in all their affairs. The new rule, extending the area covered by the B.C.B.I. from 10 miles to 20 miles radius of Charing Cross, was perhaps the main factor in the revision of the rules of the Institution. Mr. Laing also announced that Mr. Nigel Hannen, past-president, had kindly agreed to finish his term of office because he would be visiting South Africa in the near future.

BUILDING FOR A FEE

The Bovis System

[*From a Special Correspondent.*]

AS a result of the diversity of work which the building industry has to carry out and the varying circumstances under which it is performed, it is not unnatural that over the years a number of different types of contract have been evolved. Traditionally the way of securing the services of a builder has been by tender Given the right conditions, this system has considerable merit, but it would be unrealistic to pretend it is ideally suited for every class of building or every owner, for there are inherent defects which are freely admitted by members of the industry themselves.

Under the tendering system, as frequently applied in this country to-day, it is not uncommon to find a conflict of aims between the client and the builder, particularly from the financial aspect. Twenty-three years ago, Mr. Vincent Vincent, then the managing director of Bovis, Ltd., felt that it was possible to have a system where the interests of the client and the builder would be analogous.

He believed, as did the members of the Simon Committee in their report in 1944, that the only definite guarantee of a good job was a competent and honest builder who had obtained a contract at a fair price and was as determined as the architect to maintain a high standard of work. There are, of course, differences of opinion as to how this can best be achieved, but it can safely be said that the Bovis system has made a definite contribution towards this ideal.

A NEW RELATIONSHIP

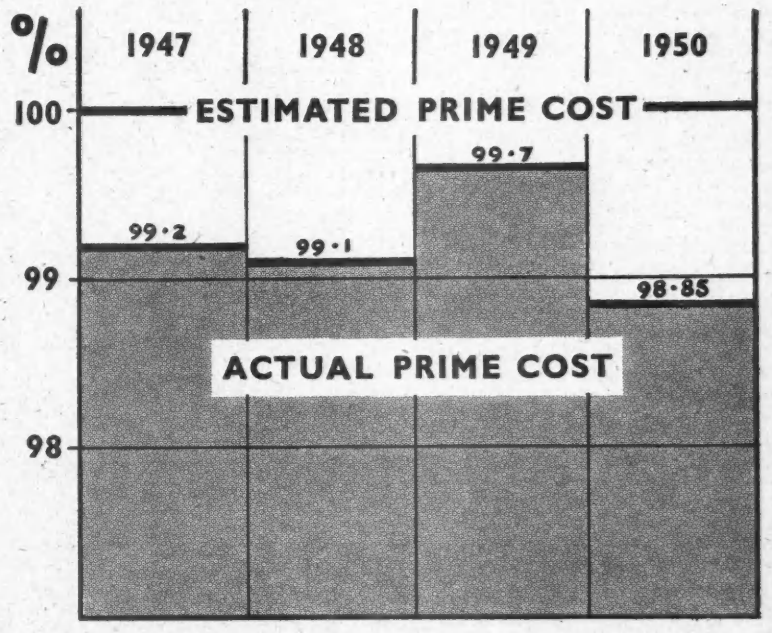
After more than 70 years of building experience, this firm gave up competitive tendering to adopt the present system. This transition was gradual as the whole staff had to be trained to the new method which, at that time, called for an entirely new relationship between the building owner and the contractor. The cornerstone of Mr. Vincent's policy was that his firm, under the direction of the architect, should place their organisation at the disposal of the building owner who would pay the net cost of the labour and materials used on his job and a fee based on a qualified quantity surveyor's estimate. This means that the builder is on the scene in the early stages of the project and thus becomes part of a team, which has for its objective the speedy and efficient erection of a building.

The building owner, consulting an architect in the usual way, appoints a quantity surveyor who draws up a bill of quantities and prices it exclusive of profit and overheads. It is upon this estimated cost that the contractor bases his fee which is adjusted, if necessary, when the surveyor submits his final estimate at the end of the job.

By combining these two amounts—the estimated cost and fee—the owner has a figure which should not change appreciably unless there are drastic additions to the building or marked variations in the cost of materials and labour.

INCENTIVE TO ECONOMY

This is not the cost plus system which fell into such disrepute during the war when it was a case of the greater the cost the greater the plus. Under this system there is no advantage to be gained by



This chart shows a comparison between the Estimated Prime Cost (given as 100 per cent.) and Bovis's Actual Prime Cost, based on averages taken for all jobs settled in each year shown on the chart. As can be seen, the latter shows a slight average saving for each of the past four years.

inflating the cost. The builder, in fact, has a dual incentive to keep costs to a minimum—(*a*) because his reputation depends on the comparison between the surveyor's final estimate and the actual cost (should he exceed it he must account for it); and (*b*) because the lower the actual cost the higher proportionally is his remuneration. In other words there is a reward for efficiency.

The critics who said that such a system would lead to inevitable clashes on pricing between the quantity surveyor and the builder have been proved wrong by over 20 years of successful operation.

During the course of the contract the quantity surveyor visits the builder's office, generally once a month, to examine all expenditure for the job—invoices, pay sheets, travelling claims, etc. It is from these records that he prepares monthly statements for the issue of the architect's certificates. Although these visits are a routine matter, their importance is not to be underestimated. At all times the quantity surveyor is entitled and encouraged to follow through and check any expenditure which appears incorrect. All books and records are "open" to him. The firm even supply the home addresses of their operatives so that travelling claims can be checked against distances travelled.

If the quantity surveyor takes extracts from invoices and goods-in sheets for principal materials like timber, steel and bricks, he can, at the conclusion of the contract, compare these figures with his own quantities. This provides an accurate check on materials received and used by the contractor. The building owner can, if he chooses, call for a monthly prime cost statement which the costing department compile as a forecast of the probable ultimate cost. As additions, omissions, or increases in labour and material costs take place, this forecast is altered to include them.

At the completion of the job, the quantity surveyor adjusts his original estimate, allowing for any omissions and additions, and produces a final valuation which is his considered opinion of what the building owner should have to pay when the prime cost is finally submitted. His estimate is not based on the figures he saw each month at the firm's head office, but is arrived at by his own calculations and any necessary measurements taken during the erection of the building. Thus, the builder's fee which is calculated on this final estimate bears no direct relation to the ultimate net cost.

NO MOTIVE FOR BAD WORK

Eventually, when all bills and financial statements have been received, the owner pays the prime cost less trade and cash discounts accorded to the builder. As the actual cost is met by the owner, there is no motive for inferior work.

In the scale of fees due allowance is made for the proportion of provisional items normally found in contracts, but an alternative scale is available (by agreement) where the bulk of the fee is calculated on estimated labour costs only. This is advantageous to the building owner where many provisional items are included in the work, and to the contractor where the proportion of labour to materials is high.

As the contractor's fee covers normal plant and overheads, the amount of profit depends entirely on the efficiency of the organisation. Experience has shown that generally three-quarters of the fee is absorbed in overheads, establishment charges and plant.

It is claimed for the Bovis system that it eliminates marked fluctuations of loss and gain from contract to contract and provides a calculated proportion for overheads and profit on each job. It is not designed for the building owner who seeks to get a building constructed below a fair price.

There are still many people in the building industry who feel there is something wrong if the contractor is not taking a definite chance of losing his money, although it is gradually being recognised that "cut-throat" tendering (i.e., where a builder loses on some jobs and must therefore make a satisfactory profit on others if he is to pay his overheads and have a margin of profit), is bad both for the industry and the building owner.

Messrs. Bovis do not pretend that their system is suitable for all types of building work, and would have no hesitation in saying so. Obviously there are very definite fields where such a system is precluded—e.g., where public money is involved.

This system is probably best applied to large organisations on a "continuity" basis where the firm, to all intents and purposes, operates as the client's building department, erecting new premises or adding to existing ones.

GUARDING THE CLIENT'S INTERESTS

Naturally, all reputable contractors intend that their buildings should be a good advertisement for their name, but with this system it is of paramount importance, as its whole success depends on the relationship between the owner and the builder. Employees are taught that they are the guardians of their client's interests. This is not merely lip service; it is achieved in practice by employing the same contract manager and indoor staff for each job undertaken for a particular firm. Very often foremen and assistant foremen work practically exclusively for one organisation.

The advantages to be gained by employing the same builder require little elaboration. Previous operations for the same owner mean cumulative experience and, in normal times, economies which can be effected by bulk buying. Avoiding normal delays entailed in obtaining competitive tenders, the builder can start as soon as plans are available, which is probably one of the greatest attractions for owners familiar with the system.

It has been said that where the builder is not paying for the labour there is a lack of urgency about the work. Under this system the builder has just as much incentive to economise on labour charges as the contractor who pays the wages from his own pocket, for if his costs are inflated they are not going to bear comparison with the surveyor's estimate which is based on efficient man-management and basic rates.

No one expects that such a system will supplant competitive tendering, but it has many advantages which cannot be denied and which have proved that there is a need for more than one system; this is an achievement in itself. It has also introduced an entirely different approach to building, which is a good thing both for the industry and the people it serves.

HOUSING PROGRESS REPORT

August Figures

THE Housing Summary presented to Parliament on October 3 as a White Paper jointly by the Minister of Local Government and Planning and the Secretary of State for Scotland, shows that the number of permanent houses completed in Great Britain during August was 14,747, compared with 15,965 in July, and with 14,945 in August, 1950.

The total number of houses completed under the post-war programme is now 1,101,462 (944,316 permanent and 157,146 temporary).

During August homes were provided by new building, repair of unoccupied war damaged dwellings and conversion, for 15,468 families, compared with 16,675 in July and 17,892 in June. This brings the total number of families rehoused by these methods under the post-war programme to 1,390,172. This total does not include homes provided in service camps or requisitioned properties.

In England and Wales only the total number of permanent houses and flats completed under the post-war programme up to the end of August was 839,753. Of this total 643,006 were built by local authorities and 131,840 by private builders, the remainder being made up by Government departments and housing associations, and rebuilt war-destroyed houses.

For Great Britain, detailed figures at the end of August were:—

	Permanent Houses and Flats Completed		
	Total to August 31, 1951	*Completions in August*	*Completions in July*
Local authorities*	738,838	11,981	13,215
Private builders	137,595	1,811	1,736
Housing associations	6,931	184	175
Government departments	17,878	697	742
War destroyed houses rebuilt—			
(i) Local authorities	9,215	6	1
(ii) Under licence	33,859	68	96
Total (Great Britain)	944,316	14,747	15,965

* In Scotland includes houses built by Scottish Special Housing Association.

SYMPOSIUM ON PRESTRESSED CONCRETE

Summing Up of Cement and Concrete Association's Venture

MR. F. G. THOMAS, Ph.D., M.I.C.E., M.I.Struct.E., Senior Principal Scientific Officer, Building Research Station, had the task of summing up at the conclusion of the Symposium on Prestressed Concrete Statically Indeterminate Structures, organised by the Cement and Concrete Association in conjunction with the Prestressed Concrete Development Group, which was held in London on September 24 and 25. Mr. Thomas said :—

It is my privilege to sum up the proceedings of these two days of stress and strain. A wide range of statically indeterminate structures has been considered in our discussion. We have dealt with bridges, frameworks, interconnected beams, columns, circular tanks, shell roofs, combined bending and torsion and even cathedrals. I shall assume that we must have continuous structures and try to sum up what we have learnt about them in the last two days, and perhaps more important what should be the course of our future study in order that we may design them more efficiently and economically.

As a research worker I shall start with the experimental work. Experimental work is vital if there is to be progress in any new field. Although one can build structures, and they may stay up, one cannot know for certain what the margin of safety really is ; the way to economy is to develop the experimental work in order to determine the parameters that have to be introduced into the design theory, and to develop the theoretical analysis so that engineers can understand it.

DEGREES OF FRICTION

There has been much "friction" at this symposium, particularly in terms of cap cables, where the friction is accompanied by another apparent defect—the slip in the anchorages. Apart from the practical difficulties that have been mentioned with regard to cap cables it is quite evident from the discussion that we want to know quite a lot more about the friction developed with such cables—or indeed with any cables in which there is curvature. We have, in fact, been told that even in straight cables there may be appreciable friction. There does not seem to be complete agreement with this, and we certainly want to know more about it. It is quite clear that we ought to find out more about the coefficient of friction for a wide variety of conditions—different types of wires, with various surface conditions, working in different types of sheathing or holes in concrete. Secondly there should be research or development work designed to reduce the value of the coefficient of friction, by suitable sheathing or other means.

It has been suggested that these difficulties can be overcome by avoiding the curvature that induces friction losses ; but again it has been pointed out that to work on such lines is to lose the desirable flexibility of such structural systems. In many cases it is a great advantage to use curved cables, but much of this advantage may be lost unless this friction loss is kept to a minimum. If we have the data—the coefficient of friction and the losses at anchorages—then we can make the necessary allowance. This kind of data can be obtained from tests in the laboratory and occasionally on full-scale structures, and must be obtained in order to obtain more economical designs.

There has been quite a lot of discussion about the redistribution of moments in continuous beams, and the general opinion appears to be that at working loads there is not much redistribution — or alternatively if there is, it is an advantage. I do not think that point of view has been wholly accepted, and I do not think it is quite in line with the discussion we had on the effect of shortening of members, where it was considered necessary to allow for the effect of the elastic shortening arising from prestressing, and for shrinkage. Creep may be quite as important, and the deformations due to it might be as much as the elastic and shrinkage movement put together, and it seems that this particular point requires further consideration.

We have had practically no direct data concerning ultimate loads, apart from the results of some tests which have been started at London University. However, from what data we have on steel or reinforced concrete structures, and from our knowledge of the deformation characteristics of simply supported prestressed concrete beams, it certainly does appear at this stage—though again further data will be required—that the redistribution before failure is likely to be smaller with prestressed concrete than with ordinary reinforced concrete ; and as was mentioned yesterday the approximations that we are accustomed to make with ordinary reinforced concrete frame design—which to some extent rely upon the ability of ordinary reinforced concrete to accommodate itself to moment conditions for which it was not designed—may not be applicable to prestressed concrete. We may need to be very much more careful about our estimation of the moments throughout continuous frameworks. The same applies to the possibility of differential settlement of foundations or abutments ; the effects with prestressed concrete may be more serious than with ordinary reinforced concrete.

DANGER OF SUDDEN FAILURE

Again most of what we have heard about this particular subject is based upon opinion or on some theoretical treatment, but that is not sufficient for us to be satisfied that we have the right load factor for our structures, and it may well be that in considerations of the load factor we should allow more for the possibility of differential settlement than we do with ordinary reinforced concrete. The type of failure of prestressed concrete members has an important bearing on this, and Mr. Morice's film showed that a very sudden failure may sometimes occur with prestressed concrete. Such a failure is very much rarer with ordinary reinforced concrete. Again, we have not very much information on this ; the ultimate strength and the behaviour at failure of even simply supported prestressed concrete beams is a subject on which we know very little indeed.

With regard to redistribution of stress it appears that this would be of some value, particularly for lower strength concretes. The point has been made that our factor of safety or load factor should take account of the possibility of using poorer concrete than that assumed in the design ; the fact that there is more creep, or what has been called "plasticity," with lower strength concrete may help to reduce the loss in strength of the structure.

NO NEW PRINCIPLE OF DESIGN

Coming now to theory, Professor Magnel has said in his paper that there are no new principles in prestressed concrete design and that is borne out by the fact that all the theoretical work in the papers in this symposium is based on the elastic theory. I think that only in one place was any reference made to non-linear stress-strain characteristics, and it certainly was not developed very far even in that case. It appears to me that the contribution from those who have discussed theory has been mainly to indicate the changing assumptions that have to be made in our calculations ; the assumptions that we have made when using the elastic theory for reinforced concrete or structural steel design do not all apply equally well when we consider prestressed concrete. For example, the shortening of members of a framework is normally neglected in structural design, but in prestressed concrete this and other effects need to be taken into consideration. Once this is done, however, the method used in design is largely one of personal preference. As Professor Magnel said, the best method is the one that one knows best ; there is a certain amount of truth in that, but at the same time one can often learn a quicker or better method, and one is always glad when somebody takes a certain mathematical solution to a particular problem and presents the answer in tabular or graphical form.

One of the important features for consideration in the theoretical study is that of the secondary moments, and in this connection variation in cable position has been shown to be of some importance. Contractors on the whole in this country are very good, but nevertheless it is difficult, as Professor Evans said, to keep reinforcement or prestressing element exactly where it is shown on the working drawings, and it was shown in one paper that small variations in the cable position would have an important effect on the secondary moments.

The positioning of the cable in design is possible in two primary ways ; one is to use the concordant cable about which we heard from M. Guyon, or we can adopt a more or less arbitrary position

deduced by previous experience, or intuition, or some rule of thumb method such as following the bending moment diagram.

With regard to ultimate load I must not here enter into what has been called a philosophy of safety; but nevertheless ultimate load has been mentioned several times, and it is quite clear that we know practically nothing about it in connection with prestressed concrete continuous structures. The relationship between stresses and loads has been discussed, and it has been pointed out that to work to certain design stresses may give little or no indication of what margin of safety we have against collapse. Here obviously is a field for experimental study.

Another point which has not been agreed upon here is the use of subsidiary non-prestressed reinforcement. Some members have advocated it and said that it was necessary, but others have said that to mix ordinary reinforced concrete and prestressed concrete is impossible, or at any rate illogical. The use of such additional steel may be of value in controlling cracking or in increasing ultimate strength. We have no scientific data for judging the real value for this subsidiary reinforcement.

NECESSARY THEORIES

The final section with which I want to deal is that of practice, and here I need say very little. Although, as I have said, for ultimate economy and full efficiency it is necessary to develop theories and to obtain the parameters of those theories from experiment, progress in prestressed concrete work will in general come from the fact that structures have been built in it. Many people have very little faith in laboratory tests; many more have little or no faith in mathematical juggling. But to see a structure actually erected is a comforting thing.

The practical difficulties of friction of curved cables, of anchorages, particularly for short cables, and expansion joints have all been overcome in important structures; none has yet fallen down, as far as I know. It is likely—as some of our designing friends have agreed—that the load factor in many of these structures is much too high. The reduction of this factor is mainly dependent on further data—particularly experimental data being obtained.

Many problems have arisen from our discussions which need solution. The Cement and Concrete Association has started on some of these problems at Wexham Springs, and I am sure that as a result of this symposium they will wish to direct their efforts in many new directions. We have also had representatives from other research laboratories and universities who will have welcomed the discussion; and we may hope that from now on there will be renewed effort to obtain the fundamental data on which it seems to me further important progress is dependent.

Tree Preservation

The Ministry of Local Government and Planning have issued circular No. 60/51, "Town and Country Planning Act, 1947, Tree Preservation Orders."

THE GAP BETWEEN RENTS AND COSTS

Should the Tenant or the Ratepayer Find the Money to Bridge It?

"MAKING ENDS MEET" was the title chosen by Mr. Hugh R. Ralph, F.I.M.T.A., F.S.A.A. (Treasurer, Harrow U.D.C.) in the third paper on "The Economics of Housing" at the recent annual conference of the Institute of Housing, at Scarborough. Mr. Ralph had much to say on the question of who should be called upon—the occupier of the council house or the ratepayer—to bridge the gap between rents and costs, as the following extracts from his paper indicate. Mr. Ralph said :—

Making ends meet in domestic life is often a matter of some difficulty and rent is, of course, one of the items which, being inelastic, helps to create the problem; there are others more elastic. From the point of view of the housing authority it is always possible to make ends meet—it can be done either by reducing costs or increasing rent or other revenues or by additional rate contributions; the problem is which of the methods is to be adopted?

The housing revenue account is compounded of a number of items, but if there is a shortage of income, failing all other sources, that shortage must be met by an additional contribution from the general rate fund; that is inescapable.

There are, however, many housing authorities who say that the ratepayers and taxpayers, having already subsidised the rents of post-war houses by £22 per annum (in the normal case), equal to 8s. 6d. per week, have done their share and that the gap must be closed by other means. What sources are available?

Can rents be increased or should other income be found? Or is the solution to be found in an examination of the other side of the account in a reduction in expenditure? These are matters upon which controversy is likely to be acute, and on which I can express no opinion but to pose the question and leave you, the lay representatives, to settle policy on the advice of your technical officers, the architects and engineers. I hope, however, at the proper time to express some opinions on some of the facile solutions which have been advocated in other quarters.

Probably the most important question to consider is the possibility or desirability of increasing rents. An examination of the housing statistics prepared by the Institute of Municipal Treasurers and Accountants and of other information available shows extremely wide variations in the rents charged for similar houses: variations which range from 6s. 7d. to 41s. per week net rent for three-bedroom houses.

Is it possible to reduce the cost of construction? It would seem to be that so far as capital costs are concerned there is little chance of reduction apart from a substantial increase in productivity and that unless local authorities see fit to embrace whole-heartedly the opportunities offered in Circular 38/51, by reducing overall size and increasing substantially the proportion of smaller houses, a substantial increase in capital cost is inevitable.

Closely allied to the cost of construction is the cost of repairs and management, and here the published statistics show even greater diversity than those of capital costs. I just cannot understand why some authorities can manage with £4 per house for repairs (the minimum figure prescribed by the Housing Act, 1946) and others find it necessary to contribute £24 for what appear to be similar properties.

Can anything be done about interest rates? There have been in the past, and more recently, suggestions that the Government should lend money free of interest for housing purposes. But why housing? Why not education? What about rural water and sewage disposal works? Why not health centres, roads, open spaces, swimming baths? Is there anything in housing apart from its special urgency which out of the whole field of local authority expenditure would justify special treatment for interest purposes?

The scheme of interest-free loans for housing purposes is no doubt extremely attractive to its supporters and would amount in effect to an increase in the Exchequer subsidy of about £30 per annum, or 11s. 6d. per week. What a wonderful prospect for the tenant. But who is to find the money? Is it suggested that the Government can find it out of the blue, or by increased taxation, or by themselves borrowing free of interest? You know in essence the suggestion amounts to nothing more than a demand for multiplying the present subsidy by three. A speaker at a recent conference in advocating the scheme is reported to have said: "It would mean that local authorities would have a freedom of expression denied to them now by Whitehall." Can anyone who gives a moment's thought to the problem convince himself that such a statement is anything but the absolute converse of what would happen?

Interest-free loans amount to nothing more than hidden subsidies of indefinite and indeterminate amount. The amount of the subsidy would depend on the capital cost of the building and developed site. Would there in such circumstances be any real brake on rising costs, would not local authorities be tempted to exercise that "freedom of expression" and increase the size of house, provide additional amenities, improve fittings and so on, and would not Whitehall be compelled, for that reason alone, to limit the size of their bill by imposing the most rigid conditions on cost, size, standards and everything else; in other words, would not "he who pays the piper call the tune" and local authorities be deprived completely of all discretion? Is not the realistic view that local authorities do not want interest-free loans at the price they would have to pay?

The opinion is held in some quarters that the cost of maintaining and adminis-

tering the long waiting lists of applications should not be effectively charged against rents. This is a point of view which cannot be brushed aside. On the other hand we must not overlook the fact that such bodies as Housing Associations and Trusts do exist, and so far as I know expenses of this kind must in these cases be charged against ordinary income.

The remaining item of importance is that of "interest on works in progress." In this case I have no hesitation in saying that I believe that if it is necessary, in the absence of a sufficient surplus on revenue account, the amount should be met from general rate fund and not be regarded as an element of cost in the calculation of rents.

Having now dealt with the major items of expenditure we turn to examine the methods and sources of meeting the cost and it would probably be true to say that the three main sources, viz., rents, Exchequer subsidy and rate contributions, are roughly of equal importance taking a large view but that the relative importance varies from area to area and depends on the general policy of the local authorities.

Are Exchequer subsidies adequate? Those who wish to depress rents would say no, that being the easy way out. Let us first face the fact that existing subsidies cannot be increased without new legislation and it would take a bold prophet to say that this or, indeed, any other government would be prepared to introduce amending legislation to increase present subsidies.

It is, however, impossible to consider the question of subsidies in isolation. Rent levels and rate contributions are roughly of equal importance and the real problem is put simply in the question—what proportion of the total cost or economic rent should be borne respectively by the tenant (as rent), the ratepayer, or the taxpayer?

ARTIFICIAL RENTS

Is there any reason for maintaining the argument that rents should be artificially held at levels so low as to impose a burden on the general rate fund for additional rate contribution? Many of the houses will be occupied by persons engaged in the building industry whose wages (in common with others) have increased very substantially since 1939—the increase is of the order of 140 per cent. Can it be argued that people who have benefited from the circumstances that created the increased costs should be insulated from the results? Putting it simply, is there anything wrong in suggesting that rents should, if it is necessary to meet increased costs, rise with wages? Why should rents be calculated on out-of-date figures of costs, or why should ratepayers who do not enjoy the amenities of the council house be asked to increase the statutory subsidy of 8s. 6d. per week by further contributions from the rates? Let us take the case of a man who, despairing of the possibility of ever getting a council house, manages to obtain a licence and build a house for himself, and use the example given by Mr. Paul Cadbury last year: his outgoings for building society repayments, repairs, insurance, etc. (but excluding rates) were modestly calculated at 44s. per week. This includes a sum varying with his locality for rate contributions to the Housing Account. Should he be called upon to provide any further subsidy beyond the statutory 8s. 6d. a week for the council houses?

The stabilisation of council house rents cannot be justified by the cost of the houses, or the average income of the tenants. Can it be justified by general rent levels? This again is extremely doubtful. Rents which have been controlled since 1916 must obviously be artificial and, indeed, the recent report of the Chartered Surveyors says categorically that unless the control is amended to allow a reasonable increase for repairs, many thousands of houses will fall into such a state of disrepair as to be uninhabitable.

Members of local authorities or housing committees who fix new rents by comparison with pre-war rents or those of pre-1919 non-council house rents overlook not only the fairly substantial increase in size of the post-1945 houses compared with earlier houses, but also the value of the equipment, fittings and amenities provided. It would seem, therefore, that one of the ways in which we can make ends meet is to charge proper rents, taking into account the size of the house and the value of the amenities offered.

UNDULY HIGH RENTS

Notwithstanding all this, it may be that for one reason or another a "cost" rent may, by any standards, be unduly high. What is to be done? Is it unfair to increase the rents of pre-1939 houses? Mr. Aneurin Bevan, when Minister of Health, said not. After all, the tenants of the pre-war houses *are* subsidised, *are* enjoying in general the same income levels as the rest, and it may quite often be a matter of luck in the future whether the man on the waiting list gets a pre-1939 or a post-1945 house and, provided account is taken of difference in size, equipment, etc., there is no sound reason to prevent the pre-1939 tenants paying a bit more to reduce the rents of the rest, and in any event the cost of maintaining those houses will have gone up with the rest and the two adjustments could quite well be done together.

Is there any other way of raising income? There are a number, but the results, save in one case, are so trifling as to be hardly worth while. Some authorities are, however, considering and some have actually instituted a lodgers' tax either by this or some other name.

Are there any other ways of easing the burden of rents? With the abolition of the old restriction which confined the powers of the local authority to provision for the "working classes" a local authority can build houses for applicants who may be in a position to pay an economic rent. Every house so built will release a minimum of £22 to the general income pool in the housing account. Consideration may also be given to the provision of garages for tenants who either for pleasure or business use cars. The rent income from garages should produce a surplus, as also should rents from shops, but again in neither case is the amount likely to be large.

The fixing of rents is, as all of you know, next to the actual shortage of houses, the most troublesome problem facing a housing committee and one which requires certain preliminary policy decisions before a start is made, viz.:

(*a*) Is the housing account to be a balanced account, i.e., are rents to be subsidised by additional rate fund contributions, or

(*b*) Is the reasonable rent level such as to produce a surplus on the revenue account? Strange as it may seem to many of the delegates there are quite a number of authorities in this happy position.

(*c*) Is special consideration to be given to certain classes, e.g. old-age pensioners, T.B. cases, ex-Service men, persons re-housed from low-rented properties, or others?

(*d*) Is a rebate scheme to be operated; or

(*e*) A lodger tax?

(*f*) Are rents of pre-1939 houses to be increased to mitigate the burden on tenants of post-1945 schemes?

When these decisions have been taken it is possible so to divide the total remaining expenditure among the available dwellings in such a way as to produce the required sum. The number of ways in which it may be done is legion, and the housing authority has complete discretion as to how the rents may be fixed and the subsidies applied; there are no conditions. Once the qualification for subsidy has been established the credit goes to the housing account—its application is a matter for decision locally. May I repeat there are no strings attached to it.

Finally, it would seem that the problem of making ends meet will not be solved by an increase in Exchequer subsidies or by interest-free loans. In present circumstances it is doubtful whether cost of construction can be materially reduced taking into account current trends. Something may be done as a long-term policy by increasing the proportion of smaller houses, i.e. one- and two-bedroom, and by experiments with houses with a smaller circulating space.

An inquiry into costs of repairs, which have increased enormously in the past few years, may be helpful.

Other sources of income will help but not materially.

The remaining gap will have to be bridged either by increased rate contributions or increased rents. The distribution of the burden between the two parties is entirely a matter of policy, but there is a considerable volume of evidence to suggest that in many cases rents are low even by comparison with privately owned houses.

OBITUARY

Raymond Frank Neave, A.R.I.B.A.

We regret to record the death on October 6 of Mr. Raymond Frank Neave, A.R.I.B.A., of Lingfield, Surrey.

FUTURE OF THE SOUTH BANK

L.C.C. Statement

A STATEMENT about the future of the South Bank was issued on Monday by the L.C.C. after a meeting of the general purposes committee. The statement says that the redevelopment of the South Bank along the lines envisaged by the council when considering the County of London Plan is being reviewed as the council considers the draft development plan to be submitted shortly to the Ministry of Local Government and Planning. It is the council's desire, so far as economic conditions permit, to take full advantage of any amenities created by the Festival on the exhibition site and of the public interest and support which has been aroused in the better use of the South Bank as a whole.

The council's scheme provides for full public enjoyment of the new embankment, and the views of London which it affords, by the creation of a riverside garden along the present exhibition frontage from the County Hall to Waterloo Bridge. It is the council's intention that this garden shall form a memorial to the people of London who lost their lives in the second world war. The Skylon will be removed during the coming winter, together with such other features along this riverside strip as are not required to be kept as amenities, and, on completion of this work, the L.C.C. will make such temporary arrangements as are necessary to enable the public to have access to it.

Behind the riverside garden the section between the County Hall and Hungerford Bridge fronting York-road is intended ultimately to be occupied by new Government offices, including extensive conference halls which will be available to remedy the serious shortage of conference facilities by which London is handicapped as compared with leading cities in other countries.

The section of the site between Hungerford Bridge and Waterloo Bridge is partly occupied by the permanent Royal Festival Hall, which is to be completed as soon as conditions permit by constructing at the rear the small theatre, orchestral practice room, art gallery and administrative offices included in the scheme as approved.

On the adjoining site, immediately between the Royal Festival Hall and Waterloo Bridge, the Queen, on July 13 last, laid the foundation stone of the National Shakespeare Memorial Theatre for which the council in 1945 agreed to provide a site on the South Bank.

As regards the parts of the exhibition site not to be redeveloped for some time owing to economic restrictions, mainly lying between the Royal Festival Hall and the new Waterloo-road — York-road roundabout, negotiations are in progress as to the practicability of retaining, until permanent redevelopment necessitates their removal, the Lion and Unicorn Pavilion, the administration buildings, the Telekinema, and possibly other exhibition buildings. Garden features and other amenities will be retained so far as practicable to preserve an attractive appearance pending redevelopment. Such a scheme would fit in admirably with the council's plans for the ultimate redevelopment of the whole of the South Bank down to Blackfriars Bridge and beyond.

Immediately beyond Waterloo Bridge is a further area ripe for redevelopment in the ownership partly of the council and partly of the Duchy of Cornwall. Negotiations have been proceeding for some time for the acquisition of this key site to accommodate the British Science Centre, a decision to establish which was announced in Parliament on November 21, 1950. It is hoped that a "new Burlington House" on the river front facing Somerset House shall form the new home of the Royal Society and 15 other leading scientific learned societies. Other buildings will house Government scientific organisations, including the Patent Office and its library, which will be modernised and extended as a first-rate central reference library of science and technology.

THE ENCOURAGEMENT OF THRIFT

Building Societies' Achievements

"BUILDING SOCIETIES have rendered outstanding service in the cause of thrift during recent years and this is specially noteworthy since elsewhere there has been a considerable measure of dis-saving," writes Mr. R. Bruce Wycherley, F.C.I.S., Managing Director of the Abbey National Building Society, in "The Secretary," journal of the Chartered Institute of Secretaries, of which body he is hon. treasurer.

"To what extent the sums invested in building society shares and deposits represent current savings is difficult to determine with accuracy," says Mr. Wycherley. He is of the opinion that the regular smaller sums received by building societies generally represent savings from current income, while the larger sums mainly represent past savings re-invested.

Quoting figures relating to building society advances, Mr. Wycherley points out that of the 1,533,000 mortgages outstanding at the end of 1950, over 1,500,000 were in respect of sums outstanding up to £3,000, only 24,000 mortgages being in respect of sums exceeding £3,000. Of the 1,500,000 balances up to £3,000, no fewer than 1,222,000 were in regard to balances under £1,000.

BOOKS RECEIVED

NEW TOWNS: THEIR CHALLENGE AND OPPORTUNITY. By L. E. White. (London: National Council of Social Service.) Price 4s. 6d.

HOSPITALS—INTEGRATED DESIGN 2nd Ed. By I. Rosenfield. (London: Chapman and Hall.) Price 120s.

BUILDING QUANTITIES. 2nd Ed. By J. H. Anderson. (London: Edward Arnold and Co.) Price 10s. 6d..

THE FUNDAMENTAL PRINCIPLES OF REINFORCED CONCRETE DESIGN. By W. T. Marshall. (London: Blackie and Son, Ltd.) Price 20s.

ENGLISH MEDIEVAL SCULPTURE. By Arthur Gardner. (London: Cambridge University Press). Price 55s.

HILL AND REDMAN'S COMPLETE LAW OF LANDLORD AND TENANT. 11th Ed. By W. J. Williams and Miss M. M. Wells. (London: Butterworth and Co. (Publishers), Ltd.) Price 87s. 6d.

ARCHITECTURAL GRAPHIC STANDARDS. 4th Ed. By Ramsey and Sleeper. (London: Chapman and Hall.) Price 80s.

BRICKLAYING SKILL AND PRACTICE. By Dalzell and Townsend. (Surrey: Technical Press, Ltd.) Price 24s.

⁂ *Books reviewed in these columns may be obtained on application to the Publisher, "The Builder," 4, Catherine-street, Aldwych, W.C.2. Cash (which should include 6d. to cover postage and packing) should accompany the order.*

STEEL SUPPLIES AND L.C.C. HOUSING

Work Unable to Start on 616 Flats

THE steel supply position as it affects their housing programme was referred to in the report of the Housing Committee at Tuesday's meeting of the London County Council. The report referred to the fact that the Government had instituted an interim scheme of priority certificates for the allocation of steel on a quarterly basis until December 31, 1951. Under this scheme defence had first priority and housing came within the second. The priority certificate was intended to give preference in delivery. Preferential certificates had been received by the council for 450 tons of steel in the quarter just ended and 300 tons in the quarter ending December 31 next.

The report states that the Council's estimated requirement in 1951 of steel for housing purposes is 15,000 tons. On June 19 last, shortly before the priority scheme came into operation, 3,750 tons were needed for housing schemes held up and 4,500 tons for normal requirements for the rest of the year. The immediate need for 3,750 tons at that time meant that two schemes for 169 flats could not be commenced, two schemes for 327 flats had been seriously delayed, and about 2,000 dwellings under construction had been delayed for periods ranging from two weeks to six months.

The present position is that there are eight schemes for 616 flats upon which it has not been possible to make an effective start and 19 schemes for 3,580 dwellings are seriously held up. The council needs 2,900 tons of steel for schemes already seriously affected or likely to be so in the near future. Of this, a minimum of 600 tons are urgently required for immediate needs. In addition, 4,000 tons are needed to meet normal requirements between now and the end of the year. As the first quarter of the Government's preferential scheme had not expired at the time the report was prepared, it was not possible to judge its merits.

It is understood that a system of steel allocations will be introduced by the Government in December under which the council could expect to receive a definite quantity in 1952. Should adequate supplies be available under this allocation scheme there is no reason why the fall in the number of commencements of houses in 1951 should not to some extent be made good in 1952.

"To help meet the situation in the meantime we are doing everything possible to reduce the amount of steel required for the construction of blocks of flats and have taken steps to import foreign steel. Every effort will continue to be made to minimise the effect of the shortage," the committee's report adds.

The Council's Lettings

During the quarter ended June 30 last, 1,755 new houses and flats on cottage estates and 851 new flats in central London were provided (a total of 2,606 dwellings with 8,202 rooms). The comparable figures in the preceding quarter were 1,503 new houses and flats on cottage estates and 458 new flats in central London (a total of 1,961 dwellings with 6,144 rooms). The total lettings, excluding transfers, during the quarter were 2,661. The total number of persons accommodated (including persons transferred) was 16,438, and the average number of persons a room was 1.2.

BRITAIN'S WASTED ENERGY

No Use for Old Machines

"THE largest store of energy which this country possesses is the energy it wastes," said DR. J. BRONOWSKI, in reading the second Des Voeux Memorial Lecture to the National Smoke Abatement Society at Blackpool, on September 26. Dr. Bronowski, who is Director of the Central Research Establishment of the National Coal Board, was speaking on "Power and Waste in their Social Setting."

"The country has a number of endearing and a number of maddening habits," he said. "I count among both a certain strain of Emett and Heath Robinson, which inclines us to treat any elderly piece of equipment much like a pensioned gun-dog whom it would be disgraceful to grudge food and house-room. I hope we shall always be able to afford the dog, but I will not hear a word in favour of antediluvian machines; and least of all do they seem to me lovable because they smoke as fiercely as their owners. The owner may not afford a new machine; the nation cannot afford the old one."

He was in no doubt at all that this country could hold its place among the leaders of world industry, but not by blowing 17 hundredweights of the energy in every ton of coal up the flue; and not by scattering sulphur on the wind and begging an allocation in Washington. We talked grandly of harnessing the tides on the Severn at a cost of £100 millions, but half that sum would modernise enough house and factory grates to save 20 million tons of coal a year.

He hoped atomic fuels would come within 25 years, but we must not suppose there was nothing for us to do meanwhile. "We have a great head of energy here now, waiting to be tapped," he said, "and we must learn to use it at once. It is the wealth of energy which we waste, day in and day out. It is the 20 hundredweights of energy that is there, ideally, in every ton of coal—and the 17 of these ideal hundredweights which we throw away. It is the smoke up the chimney and the soot on the boiler, the steam that goes to waste in the cooling towers and the smell round the gas works, and a million inefficient appliances in every factory and home."

Dr. Bronowski declared that shortage of raw materials was really more serious than the shortage of energy. Shortages could be overcome by new processes and techniques, but these would call for greater amounts of energy. We must learn not to waste energy and for this we need modernised plant, the revision of layout and sequences in all industrial operations and, above all, new processes. For these, we had a source as rich as the energy we threw away: the skill of ten generations of men bred to industry. We had the scientists, but we were short of the technologists who could translate scientific developments from the laboratory to the factory.

Smokeless Homes

THE closing session of the Society's conference on September 28 was on the problem of domestic smoke—from the woman's viewpoint. Papers were read by MRS. ELSPET FRASER-STEPHEN, general secretary of the Women's Advisory Council on Solid Fuel, MISS MARJORIE LOVELL BURGESS, of the Gas Council, and DAME CAROLINE HASLETT, director of the Electrical Association for Women.

MRS. FRASER-STEPHEN asked housewives to consider what they could do during this autumn of 1951 to further smoke prevention and save fuel. She urged them to remove any old-fashioned basket or stool grates and put in either an improved type of fire or an openable stove. If they did this, she said, they could feel that they had not only taken an active and useful step towards lightening their own labour, reducing fuel costs and increasing the comfort of their homes, but had also helped to make their own city or town cleaner, to the benefit of themselves and their neighbours.

MISS LOVELL BURGESS stressed the fact that the gas industry produced two smokeless fuels from coal—"the one industry whose engineers deliberately set out to make smoke, from good quality coal, for the sheer value of what that smoke contained." She urged the joint use of gas and coke in the home: "Gas and coke together (gas for speedy cooking, auxiliary heating and the provision of instantaneous hot water winter and summer, and the coke for a more even and cleaner distribution of heat in the home form a natural, economical and hygienic smokeless fuel partnership)."

DAME CAROLINE HASLETT emphasised the great contribution to the cleanliness of our homes and towns made by electricity. In use, electricity made no smoke or dirt, and although the generating stations burned over 16 per cent. of the nation's coal they produced less than one-half per cent. of the smoke emitted. "The individual housewife," said Dame Caroline, "is very much at the mercy of the community in which she lives in regard to smoke nuisance, but in her own home she can go a long way towards alleviating the deteriorating effects on furnishings and fabrics by the use of electricity."

New President Elected

At the opening of the conference on September 26, Alderman Professor F. E. Tylecote, of Manchester, was elected president to succeed Dame Vera Loughton Mathews. The new president has represented Manchester City Council on the Society for many years.

ALUMINIUM FOR CHURCH ROOFS

S.P.A.B.'s Suggestion to Foil Lead Thieves

THE USE of pure aluminium to replace lead on the roofs of ancient buildings is being considered because of the depredations of lead-stealing gangs.

The problem was discussed in the report presented at the annual meeting of the Society for the Protection of Ancient Buildings, which was held in London on October 4.

The Society has given anxious thought to the difficult problem of the thieving of lead, and has addressed appeals to Scotland Yard, to the Home Office and to the Board of Trade, pointing out the seriousness of the position, and asking that something should be done to check the outbreak, the report stated.

Stricter control of the sale of second-hand lead, additional police protection, and heavier fines were some of the deterrents suggested. Drastic action was needed as during the past two years between 200 and 300 churches had been stripped of their roofing; so had many unoccupied houses of historic value.

Lord Esher, chairman of the society, suggested that the church of St. Anne and St. Agnes, designed by Wren, in the City of London, should not be demolished, as has been proposed, but should be preserved for use as an ecclesiastical museum.

CLERKS OF WORKS

Institute's Examination Results

THE RESULTS of the examination for Clerks of Works held recently at the Royal Institute of British Architects have just been published. Twenty-eight candidates were successful in the preliminary examination and the following is a list of those candidates who were successful in the final examination:—

S/Sgt. A. E. Belcher, Gillingham, Kent; J. Howell, Newark, Notts.; A. R. J. Jeskins, Chorley Wood, Herts.; W/O. II F. J. Kingsford, Gillingham, Kent; H. V. Kirk, Catford, London, S.E.6; A. McIntyre, Lisburn, Co. Antrim, N.I.; J. E. Newman, Greenford, Middlesex; L. Painter, Bath, Somerset; S/Sgt. W. R. Patrick, Chatham, Kent; S/Sgt. R. S. Pennington, Chatham, Kent; F. J. Rudd, Tunbridge Wells, Kent; J. Russell, Edinburgh; A. C. Scott, Bournemouth, Hants.; J. E. Skipper, Balham, London, S.W.12; W/O. II A. R. Thairs, Gillingham, Kent; G. A. Tomalin, Northampton; I. Walton, Birtley, Co. Durham; D. D. Waters, Walton, Norfolk; C. J. Webber, Newton Abbott, Devon; H. J. Wilson, Barking, Essex; R. A. G. Gambling, Woodford Green, Essex; I. M. Green, Bradford, Yorks.; A. E. Lentell, Tilbrook, Hunts.; S. Richardson, Preston, Lancs. W. S. Greenhalgh, Bolton, Lancs.; H. B. T. Humphries, Hemel Hempstead, Herts; C. Millington, Hayes, Middlesex; A. W. Townsley, Sheffield, 7, Yorks.

The following passed in two groups in September, 1950, and this time passed in one more group:

F. G. Evans, Sutton-at-Hone, Dartford, Kent.

Passed in three groups out of four:

S/Sgt. S. J. Brooke, Gillingham, Kent; C. H. Chambers, Battle, Sussex; C. J. Clarke, Bedford, Beds.; W. Foster, Cinderhill, Nottingham.

Passed in two groups out of four:

C. Barratt, Crossgates, Leeds, Yorks; E. A. H. Cox, Brighton, Sussex; C. Jackson, Middleton, Lancs.

BOOK

THE INSTITUTE OF CLERKS OF WORKS OF GREAT BRITAIN YEAR BOOK, 1951-52. Edited and published by G. W. Harris, 43, Leopold-road, Harlesden, N.W.10.

THE names of all members, fellows, associates and officers of the I.C.W. up to and including the institute's July election, are included in this edition of the I.C.W. Year Book, which has been compiled with the prime object of bringing the institute to the notice of architects, engineers and others who are interested in or who engage clerks of works.

In a preface, it is explained that the I.C.W. might easily have a much larger number of members, but while welcoming any suitable person they do not admit anyone to full membership unless he is of proved ability and high character, and candidates under 35 are not admitted unless they have passed the institute's final examination. The I.C.W. want architects and others in need of a clerk of works to apply to the secretary for one "as a matter of course, and not as a last resort."

In addition to the lists of members, etc., there is a useful section of the book devoted to tables, formulæ, and other information specially applicable to the building industry.

Gloucester Nursery School

The Clerk of Works for Gloucester Nursery School, Northampton, illustrated in our issue of September 28, was Mr. R. J. Luxford, M.I.C.W., and the general foreman was Mr. F. R. Goodingham, of Messrs. Bernard Sunley and Sons, Ltd.

THE BUILDING EXHIBITION

Advances with Powered Tools and New Materials

[From a Correspondent]

ONCE again, for a fortnight in November, the Building Exhibition will be at Olympia. It is the twenty-fourth in the series, and this year it will be bigger and better than ever before. It will fill not only the Grand Hall and the National Hall, but also, for the first time, the ground floor of the Empire Hall. It is an exhibition which has a very wide appeal, embracing the interests of all who are professionally concerned with building, from the architect working out his design on the board to the workman plumbing a jamb. Included also are the decorative arts, the varied equipment for buildings of all kinds, domestic, scholastic and industrial, and those branches of civil engineering which are associated with the layout and development of building sites.

Though the building industry is often accused of being opposed to new ideas, the exhibition offers evidence of considerable advance in the adoption of hand-power tools, both pneumatic and electric. Many firms show these. We have long since become accustomed to the pneumatic drill for breaking up road surfaces, but now the building worker is seen handling power-operated screw-drivers and hammers and electric planes. On a larger scale we find such things as power-driven barrows; portable hoists operated by a small petrol engine or electric motor; new types of light excavators suitable for trenching house foundations; runabout cranes that will pick up stacks of bricks in stillages and deposit them where wanted; portable air compressors; vibrating machines for concrete; floor sanders, cleaners and polishers; and many other applications which substitute machine for hand labour.

New Materials

Restrictions in supply due to post-war conditions, dollar shortages and, latterly, the imperative claims of rearmament, have brought about increasing substitutions for time-honoured building materials, especially timber and steel. Thus, we see alternatives for timber joists, floor boards and, roof members. Aluminium takes the place of steel. Plastics in various combinations find innumerable applications, both structural and decorative.

New materials also are to be seen, such as an expanded clay aggregate made by a patented process for use in concrete, or, in its dry form, as an insulating material; a lightweight siliceous material of cellular structure in slabs and blocks possessing low thermal conductivity; a mixture of exfoliated vermiculite, cement and lime which can be sprayed to any desired thickness on any base, giving protection from fire and insulation against heat and cold; a load-bearing panel unit composed of two reinforced plaster skins with a honeycomb core; an asbestos plastic weatherproof board which is resistant to heat, does not warp or twist, and has a hard surface; and many others. Also to be noted are a standardised system of construction for school buildings, with steel framework and wood wool slabs; a new EJMA window of a somewhat heavier section, yet using little more timber; an inflatable rubber tube for moulding ducts in concrete; an interior screen which slides and folds into a cupboard recess when not in use; a new balanced-flue gas water heater which fits close against the wall and has a single duct through which fresh air is drawn and the products of combustion are discharged; weatherstrips for keeping out draughts around doors and windows; a method of concrete flue construction with ducts for convection heating; new types of hollow glass bricks, double-glazing units, and toughened glass windows and doors; heat-absorbing glass, a new "Festival" pattern obscure glass, and glass in the form of fibre for thermal insulation.

Three Special Exhibits

The Building Exhibition does not go in for "stunts"; nevertheless it is enlivened by displays of a special kind. This year there are three. The first, occupying the whole of one side of the National Hall, is devoted to the craft of masonry. This has been organised and designed under the direction of Mr. Lawrence Wright, A.R.I.B.A. Its aim is to direct attention to the kinds of building materials, to further their use, and foster the growth of apprenticeship. There is much need for this. Masons in 1923 formed six per cent. of all building craftsmen; in 1939 the percentage had fallen to four, and in 1947 to just over two. Yet, with all the war damage to churches and other buildings, and the needs of new buildings, there is work ahead for generations of stonemasons. The recent repairs to Salisbury Cathedral are shown by a comprehensive display, including the actual stones taken from the top of the spire, in company with photographs and specimens of the new stones that have replaced them. Of much interest, too, is a scale model of a Cotswold stone manor house designed and built by Miss Elizabeth Muntz, the sculptress, for the daughter of Mrs. Eric Kennington, and later accepted on behalf of the Heritage Craft Schools at Chailey, Sussex, by their patron, Her Majesty the Queen.

The craft has moved with the times. Machinery is now used for the laborious parts of the work, and men specialise in one or other of the four principal branches —as setters-out, banker masons, stone machinists and fixer masons.

"The Joiner's Shop"

Linked with the foregoing is the second special feature of the exhibition, "The Village Joiner's Shop." It represents the workshop of a small business run by the owner and one or two assistants in a building adapted by his predecessor from a barn or outhouse. Here the owner himself would work at the bench with his men, doing jobbing repairs, general household repairs, and so on. He would be a man of between 50 and 60, and the period would be before the age of machinery, when all sawing, planing, turning, etc., was done by hand. He would, in fact, be a master craftsman, rather contemptuous of machines.

The tools he had in common use—rip saw, hand saw, panel saw, tenon saw, wooden planes, chisels and gouges—are to be seen in this village workshop, as well as a special exhibit of specimen tools from the collection of Mr. R. A. Salaman. There is, too, a pole lathe at work of a type that dates back to very ancient times, yet it has survived to the present day in the Buckinghamshire woods. The demonstration at Olympia has been arranged by Mr. L. John Mayes.

The third special display is a selection of architectural drawings from this year's Royal Academy, and also exhibited are Mr. Basil Spence's much-discussed drawings for the new Coventry Cathedral.

All this makes up an exhibition that is not only of interest, but also of practical service to all concerned with building. It opens on Wednesday, November 14, and closes on Wednesday, November 28.

INTERNATIONAL TIMBER TRADE

Reappearance of U.K. in European Markets

OWING to the stimulus provided by increasing consumption and a continuous rise in prices, the output of timber and timber products has continued to expand since the beginning of 1951 in most of the exporting countries. Trade remains very brisk and the volume of imports has again increased as compared with 1950.

Such are the main facts brought out by an examination of the figures in "Timber Statistics," recently published in Geneva by the United Nations Economic Commission for Europe and the Food and Agriculture Organisation.*

European orders, particularly for sawn softwood, with a view to delivery during 1951, were placed, as usual, well before the end of 1950. Towards the end of the first quarter of 1951, the Scandinavian countries had already sold 80 per cent. of the total estimated amount for that year. The most striking feature of the crop-year was the reappearance of the United Kingdom as a large-scale buyer on European markets, from which it had practically withdrawn in 1950, preferring to make its essential purchases in the dollar area countries. On the other hand, purchases by the Netherlands, Denmark and Western Germany, which had increased appreciably in 1950, remained relatively small for 1951.

Output of sawn softwood has considerably increased in Europe following the heavy demand and rising prices. It has also increased in North America; and Canada in particular is becoming a large-scale source of supply for the Old World. European imports of sawn softwood have expanded still further; the United Kingdom has on this occasion taken the lion's share with 223,600 standards, i.e., approximately 44 per cent. of the total volume of the European imports amounting to 511,300 standards. Of these imports, 97,100 standards came from the dollar area, but, in spite of that contribution, European stocks of sawn softwood still show a downward tendency.

Notwithstanding this situation, certain European countries have for some time past been disinclined to import large quantities of timber—particularly sawn wood—at the present very high level of prices and prefer to draw on their stocks.

In any case, supplies of sawn softwood for Europe would seem to be assured for the current year, concludes "Timber Statistics," though at greatly increased prices. It is too soon to say whether the drop in prices of several raw materials on international markets will affect the timber market.

* "Timber Statistics Quarterly Bulletin," including market reports, for January-March, 1951, volume IV, No. 1, can be obtained from the Stationery Office, the U.K. sales agents for U.N. publications.

LISBON ROAD CONGRESS

"Motor Vehicles Absorbing Tenth of National Income"

THE British Road Federation was represented at the ninth congress of the Permanent International Association of Road Congresses at Lisbon. On September 20 road experts from all over the world heard a paper on "The Economic Justification of Road Works" read by MR. C. T. BRUNNER, M.A., M.Inst.T. (director and general manager of Shell-Mex and B.P. Ltd., and chairman of the British Road Federation's publicity committee).

The paper showed that economic criteria —reduction of vehicle operating costs and road accidents—should be applied to roadworks, and that where the indications were favourable, roadworks were as fully justified as any other form of capital investment.

There was still too widespread a tendency for governments in their budgets to regard road expenditure as merely a semi-luxury item which could well be pruned.

"In the field of financial policy there should be a direct relationship between the monies collected in taxation from vehicle operators and the monies allocated to the roads," said Mr. Brunner. "Where this has been established it is possible, as happened in California in 1949, for an increase in motor taxation to be willingly accepted by vehicle operators in the knowledge that the proceeds would be applied to the improvement of the road system, and the consequent overall reduction of their costs of operation.

"It has been calculated that expenditure on motor vehicle operation on the British highway system in 1949 amounted to £1,039,000,000, or 10.1 per cent. of the total national income of £10,226,000,000.

"Expenditure on operating road vehicles amounts to some 70 per cent. of the total British expenditure on all kinds of inland transport and it absorbs a steadily increasing proportion of the national income, as in most other countries. In spite of this the new capital expenditure on the roads since the beginning of the motor era has been relatively small. During the last 30 years new road construction has absorbed only £80,000,000."

A programme of road construction and improvement, estimated to cost £550,000.000, would promise a saving to British motor vehicle operators of £95,000,000 a year on the basis of the 1949 volume of traffic, a figure which would increase rapidly with the further growth in the number and use of motor vehicles. The economies indicated fell under five heads:—

(1) Saving in time through higher average speeds and fewer undesired stops.

(2) Saving in fuel through reduced traffic congestion.

(3) Saving in tyres through fewer undesired stops and smoother flow of traffic.

(4) Saving in repairs and maintenance through smoother flow of traffic.

(5) Saving in accidents from segregation of different types of traffic and fewer opportunities for traffic friction.

"Standardisation in the processes of construction and major improvement may also be expected to lead to standardisation in methods of maintenance, where the effect of the growth of traffic will be a demand that maintenance work should be concentrated into as short a period of time as possible, in order to avoid disruption of normal traffic flows," Mr. Brunner continued. "This will mean in practice that small groups of 'pick-and-shovel' men will be increasingly replaced by the mobile gang equipped with mechanical aids. The tendency will be to close a section of road completely for a short time, detour the traffic and concentrate on completing the work as quickly as possible. It is essential that the highway engineer should know well in advance how much money will be available, preferably over a period of years, so that he may prepare and execute the most effective maintenance programme."

ROADS IN THE SOUTH-WEST

British Road Federation and Ministry's Proposals

THE British Road Federation has issued a new publication which produces further evidence for the need to improve road communications between the Midlands, South Wales and Bristol. In the Minister of Transport's 10-year plan for highway development, announced in 1946, there are the following proposals which affect the area in question:—

A motorway of 76 miles from Birmingham to Almondsbury, just north of Bristol; a bridge over the Severn between Beachley and Aust; from Almondsbury a motorway which leads over this bridge and runs into South Wales, by-passing Newport; from Upton-upon-Severn, 17 miles north of Gloucester, a tributory motorway to just west of Ross; modernisation of the "heads of the valleys" road, the "South Wales ports" road, and the Cardiff-Merthyr road, by-passes at Port Talbot, Neath and Swansea; completion of the Cardiff by-pass.

The total cost of this part of the plan is estimated at £35,000,000, a sum by no means excessive when compared to the vast capital investment projects now in hand (£220 million is involved in such schemes in South Wales alone). It is further estimated that, even on the basis of present traffic, vehicle operating costs would show a saving of £4,000,000 as against the annual cost of the scheme.

The booklet emphasises the steadily increasing interdependence of the economies of South Wales and the Midlands, and the enormous handicap imposed on a proper development of this economic liaison by the present pitifully inadequate roads.

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LAW REPORT

Builders' Action Against Architects Fails

KING'S BENCH DIVISION.
BEFORE MR. JUSTICE GORMAN.

Hawkes, Harris and Hambleton v. Melville Seth-Ward and Partners

MR. JUSTICE GORMAN in the King's Bench Division on October 3 dismissed, with costs, an action brought by a Slough firm of builders and contractors who worked on the site of a new service station at High Wycombe after, they alleged, it had been falsely represented to them that there was in force a valid licence isued by the Ministry of Works authorising them to do the work.

Hawkes, Harris and Hambleton, of Wellesley-road, Slough, claimed "damages for deceit" against Melville Seth-Ward and Partners, chartered architects and surveyors, of Station-road, Rickmansworth, who contested the action and denied the allegation.

Mr. R. Graham Dow, for plaintiffs, in opening the case, said his clients contended that they were induced to do the building for Gregory's, Ltd., clients of the defendants, on the representation of Mr. J. W. Drake, L.R.I.B.A., a partner in the defendant firm, that a valid licence existed authorising them to do it.

"In due course they discovered that there was a licence but it did not authorise these plaintiffs to do the building," said Mr. Dow.

Counsel referred to an interview on October 13, 1949, between Mr. James Hawkes and Mr. Ivor A. Harris, representing the plaintiffs, and Mr. Drake, and said his clients claimed that they spent £806 on wages and materials. They alleged that on December 29, 1949, for the first time, it was disclosed that the licence did not authorise them to do the work.

By their defence, defendant firm said there was in force a valid licence authorising the work to be carried out by the maintenance staff of Gregory's, Ltd., with the assistance of men employed by Mr. A. W. E. Heath, a Gerrards Cross builder. At the interview on October 13 Mr. Drake informed the plaintiffs he believed they were employed by Mr. Heath. The licence was expressly brought to their notice.

Describing how the "all-important" interview of October 13 arose, Mr. Justice Gorman said the plaintiffs were getting to the end of house-building operations they had been carrying out and sought an opportunity of doing other work. So far as Mr. Drake was concerned, it was becoming important that progress should be made, the licence being in danger of expiry.

It was quite clear Mr. Heath's name was mentioned as being the person behind Mr. Hawkes and Mr. Harris coming to see Mr. Drake.

The judge said he was satisfied from all the circumstances that Mr. Drake did in fact believe that these people were connected with Mr. Heath in such a way having regard to his (Mr. Drake's) interpretation of the conditions of the licence, as to bring them within the ambit of people whom it was permitted to employ in carrying out its terms and he accepted Mr. Drake's account.

The action failed.

NEWS IN BRIEF

New I.E.S. President

With the opening sessional meeting of the Illuminating Engineering Society on October 9, Mr. J. G. Holmes, A.R.C.S., B.Sc., F.Inst.P., F.I.E.S., took office as president of the Society for the 1951-52 session.

Pedestrian Crossing Protest

Wolverhampton Town Council is to protest to the Ministry of Transport against the "arbitrary reduction" in the number of pedestrian crossings in Wolverhampton from 204 to 83.

Building Alliance Golfing Society

The autumn meeting of the Building Alliance Golfing Society was held on the course of the Berkshire Golf Club on September 27 and about 60 members were present. *The Builder* Trophy was won by Mr. J. Ashton with a score of 80. Other prizewinners:—1st singles, A. J. Carr 76; 2nd singles, H. V. Mabey 77; 3rd singles, G. Mansell 78; 1st fourball foursomes Stableford, F. Pavletich and P. Hickey, 40; 2nd fourball foursomes Stableford, R. T. Warren and C. G. H. Stevens, 40.

Flow Production Factory

A new factory which, it is claimed, incorporates the latest flow methods of production based on investigations in America and Europe, was recently completed at Wishaw, Lanarkshire, for Smiths English Clocks, Ltd. It is estimated that the new factory will enable the firm to produce 80-90,000 alarm clocks a week. Mr. L. W. Hutson, O.B.E., F.R.I.B.A., was the consultant architect for the new building, which covers an area of 150,000 sq. ft. The contractors were Scottish Industrial Estates, Ltd.

Coloured Road Surfaces

Liverpool Corporation Highways and Planning Committee, which controls nearly 1,000 miles of roadways in the city, is experimenting on coloured road surfaces, and the chairman (Councillor J. E. Thompson) says it is proposed to give more colourful finishes to road surfaces. Red asphalts and coloured gravel are being used in various suburbs, and when Castel-street, which provides the main approach to the Town Hall, is resurfaced red chippings will be used in the resurfacing asphalt.

Wind-Generated Heat for Houses

The use of a windmill-driven heat pump in houses, especially in rural areas, to provide heat and power for almost every domestic requirement, is a remedy which has been developed by Mr. A. W. Capps, of Edgcumbe, Crowthorne, Berks. In a model bungalow which he has designed, the inventor has set the windmill in the centre of the plan so that it rises from the roof like an aerial mast. The basic principle of this method of power production is to use the windmill-driven heat pump to extract heat from the atmosphere during the warm weather and store it underground mainly for use when the weather is cold.

Mr. Capps estimates that to store the heat it would be necessary, in the case of the average home consuming 10,000 B.T.U.s per hour, to have a 12-ft. diameter underground water reservoir and 12 soil grid tubes. Heat thus stored could, it is claimed, be easily utilised for the various domestic uses. The cost of building dwellings incorporating this system of heat generation would, it is believed, vary only a little from that of the orthodox types.

Franco-British Students' Competition

An exhibition of drawings submitted by students of the Ecole des Beaux-Arts of France and of the recognised British schools of architecture for this year's annual joint competition will be open to the public from 3 to 6.30 p.m. next Tuesday, at the Bartlett School of Architecture of the University of London, Gower-street, W.C.1.

Mortars for Brickwork

The Ministry of Works have issued an advisory leaflet, number 16, called "Mortars for Brickwork." This tells the reader what are the special properties of mortar made with cement, with lime, or with various proportions of cement and lime, and explains why one mortar mix will not do for every job. A table of "recommended mixes" is given for various types of walls, for positions in relation to the building and to weather exposure, and according to the seasons. Copies may be obtained from H.M. Stationery Office, price 2d.

Garages or Houses

When St. Helens' Borough Engineer (Mr. M. Ward) was reporting recently on the progress made in connection with the erection of garages on certain Corporation housing estates, Councillor J. T. Jones made a heated protest against the building of such garages. While people had no proper housing accommodation, he said, they should not go on building garages. Houses should come first. Councillor J. A. Waring said there was a demand for the garages on the housing estates, but Councillor Jones insisted that improvements to houses should be done first. It was decided to proceed with the erection of the garages.

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Sanitary Engineers' Examinations

The next half-yearly examination for associate membership of the Institution of Sanitary Engineers will be held in London and other centres on November 22, 23 and 24 next. Examinations will also be held in May and November, 1952. Particulars from the secretary, 118, Victoria-street, S.W.1.

Road Statistics

The British Road Federation, 4a, Bloomsbury-square, W.C.1, has now issued the 1951 edition of "Basic Road Statistics," a booklet (price 1s.) "issued annually in an attempt to bring some order into the confusion which arises from the use of contradictory or conflicting road statistics and with the object of providing a standard reference on all essential road matters." In addition to purely statistical information there are interesting sections dealing with such subjects as the petrol and oil tax, and the Road Fund and the Exchequer.

L.C.C. and Civil Defence

The basic rescue training ground at "The Abbey," Campden Hill-road, Kensington, was opened yesterday (October 11) by Mr. Edwin Bayliss, chairman of the L.C.C. general purposes committee, when there was a demonstration by rescue, ambulance and wardens sections from L.C.C. and borough council divisions of the County of London Civil Defence Corps. "The Abbey" is the first of a series of training grounds to be opened which the L.C.C. is preparing for the basic training in rescue work of members of all sections of the County of London Civil Defence Corps.

Permanent Buildings of Timber

Timber has come to be regarded as a material suitable only for temporary buildings, but this view is strongly countered in a thought-provoking booklet just issued by Medway Buildings and Supplies, Ltd., 72, Victoria-street, S.W.1. Photographs are shown of timber-built houses and other buildings still in perfect repair after 200 or 300 years' use, a life span for any building, whatever the material used, seldom even aimed at nowadays. It is pointed out that the majority of Americans live in timber-built houses, and that timber houses provide great comfort on account of the heat-insulating powers of timber, an inch of which is roughly equivalent to a 9-inch brick wall. As regards economy, the booklet draws the general conclusion that the saving in cost in constructing a timber house against brick might be 10 to 15 per cent., and from the aesthetic point of view criticisms are answered in advance by the photographs of elegant modern timber houses shown in the booklet.

MONOPOLIES COMMISSION

Imported Timber for Investigation

THE BOARD OF TRADE have made a new reference to the Monopolies and Restrictive Practices Commission. The matter to be investigated is the supply of imported timber (hardwood, softwood and plywood). The reference requires the commission to make a report to the Board of Trade both about the facts of the matter and about the bearing of the facts on the public interest.

Any person or organisation wishing to offer evidence on the subject matter of this reference should write to the Secretary of the Monopolies and Restrictive Practices Commission, 3, Cornwall-terrace, N.W.1.

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

H. Attwood, Ltd. (498678). Regd. Aug. 21, 121, St. Peter's-st. Derby, bldrs. and contractors, etc. Nom. cap.: £2,000. Dir.: H. Heathcote Attwood, 98, Chaddesden Park-rd., Derby.

A. W. A. Taylor, Ltd. (498784). Regd. Aug. 24, 3, Clarence-par., Cheltenham, bldrs., bldg. contractors, etc. Nom. cap.: £7,000. Dir.: A. W. A. Taylor, 24, Prestbury-rd., Cheltenham.

Frank Berry and Son, Ltd. (498794). Regd. Aug. 24, Causeway Works, Wilderspool Causeway, Warrington, bldr. and contractor. Nom. cap.: £10,000. Dir.: F. Berry, 67, Chester-rd., Grappenhall.

G. A. Draper and Co., Ltd. (498796). Regd. Aug. 24, 55, Burrage-rd., Plumstead, S.E.18, bldrs., etc. Nom. cap.: £100. Dirs.: G. A. Draper and Mrs. J. A. F. Draper, 29, Lower Camden, Chislehurst, Kent.

Fergus Decoration, Ltd. (498836). Regd. Aug. 25, 14, Queen-st., E.C.4, decorators, bldrs., bricklayers, etc. Nom. cap.: £2,500. Dir.: Hon. A. Macnaghten, 36, Park-st., W.

W. Burston and Son, Ltd. (498873). Regd. Aug. 25, Fearnville Works, Strode-rd., Clevedon, Som., bldr. and contractor. Nom. cap.: £5,000. Dirs.: R. Burston and Edith L. I. Burston, Robelin, 45, Dial Hill-rd., Clevedon, Som.

Webster Bros. (Wirral), Ltd. (498874). Regd. Aug. 25, Millcroft, Greasby-rd., Greasby, Wirral, bldrs., etc. Nom. cap.: £2,000. Dir.: G. H. Webster.

H. W. Berry and Co. (Battersea), Ltd. (498898). Regd. Aug. 27, 72, Mysore-rd., Lavender Hill, S.W.11, bldrs. and contractors, etc. Nom. cap.: £5,000. Sub.: C. Buckley, Yewtree Cottage, St Nicholas Hill, Leatherhead, Surrey.

Jack Pockley and Co., Ltd. (498901). Regd. Aug. 27, Palace-av., Bridlington, bldrs. and contractors, etc. Nom. cap.: £2,000. Dir.: J. Pockley, Eastcliffe, Greame-rd., Bridlington.

John Eady and Partners, Ltd. (498903). Regd. Aug. 27, bldg., public works and civil engng. contractors, etc. Nom. cap.: £2,000. Dir.: J. E. Eady, 19, Margaret-st., Derby.

John Webb and Partners, Ltd. (498957). Regd Aug. 29, Amberley-hse., Norfolk-st., Strand, W.C.2, bldg. contractors, etc. Nom. cap.: £2,000. Dirs.: J. R. G. Webb and Mrs. E. J. Webb, 26, Tudor-av., Worcester Park, Surrey.

Henning (Hampstead), Ltd. (498999). Regd. Aug. 30, 52, Hillfield-rd., Hampstead, N.W.6, bldrs., bricklayers, etc. Nom. cap.: £100. Dirs.: E. J Henning and Jenny I. Henning.

Hollands (Chalford Hill), Ltd. (499003), Regd. Aug. 30, Chalford Hill, nr. Stroud, bldr. and contractor. Nom. cap.: £2,000. Dir.: J. J. Holland, 10, Frith Wood, Brownshill, nr. Stroud.

John Sheffield Construction Co. (Wraysbury), Ltd. (499007). Regd. Aug. 30, 113, High-st., Staines, Mddx., bldrs. and contractors, etc. Nom. cap.: £15,000. Dir.: J. V. Sheffield, Laverstoke-hse., Whitchurch, Hants.

Pettitt and Lancaster, Ltd. (499016). Regd. Aug. 30, Clock-par., London-rd., Enfield, Mddx., bldrs. and contractors, etc. Nom. cap.: £100. Dir.: L. G. A. Pettitt, 7, Walsingham-rd., Enfield, Mddx.

Whiting and Dudley, Ltd. (499032). Regd. Aug. 30, Mill-st., Brierley Hill, Staffs, bldrs., contractors and estate developers, etc. Nom. cap.: £1,000. Dir.: J. S. Whiting, 257, Bridgnorth-rd., Wollaston, Stourbridge.

Carsin (Bristol), Ltd. (499039). Regd. Aug. 31, 214, West-st., Bedminster, Bristol, bldrs. and contractors, etc. Nom. cap.: £1,000. Dir.: G. E. Carey, 5, Brunel-rd., Bristol, 3.

Gamblin and Son, Ltd. (499049). Regd. Aug. 31, 92, Staines-rd., Sunbury-on-Thames, Mddx., bldrs., etc. Nom. cap.: £5,000. Dir.: A. Gamblin, 307, Ashford-rd., Laleham, Mddx.

John Poole and Co. (Midlands), Ltd. (499058). Regd. Aug. 31, 55, Cornwall-st., Birmingham, bldrs., bldg. contractors, etc. Nom. cap.: £1,000. Dir.: R. P. Garner, Cryers Oak, Norton Green-la., Knowle, Warwicks.

Murals, Ltd. (499063). Regd. Aug. 31, 6, Victoria-mews, New Southgate, N.11, bldrs. and contractors, etc. Nom. cap.: £100. Dir.: A. G. Humphreys, 166, Cat-hill, East Barnet, Herts.

Brockwell Mosaic Co., Ltd. (499087). Regd. Sept. 1, Stanbury Works, Stanbury-rd., Peckham, S.E., bldrs., etc. Nom. cap.: £1,000. Dirs.: E. G. G. Shea and Mrs. K. B. Shea, 62, Addington-rd., W. Wickham, Kent.

Harrowville Builders, Ltd. (499101). Regd. Sept. 1, 29-31, London-rd., Twickenham. Nom. cap.: £500. Dir.: S. H. Carder, 23, Harlington-rd. East, Feltham, Mddx.

H.R. Contractors, Ltd. (499105). Regd. Sept. 1, 79, Uxbridge-rd., Hanwell, Mddx., bldg. contractors, etc. Nom. cap.: £1,000. Dir.: S. R. Hughes-Roberts, 17, Cleveland-rd., Ealing, Mddx.

Davidson and Taylor, Ltd. (499136). Regd., Sept. 3, Temples North Farm, Blyth, Northumberland, bldrs. Nom. cap.: £2,000. Dir.: J. L. Davidson, 12, Springbank-rd., Newcastle-on-Tyne, 2.

Farrow Bros., Ltd. (499169). Regd. Sept. 4, bldrs. Nom. cap.: £3,000. Dir.: R. Farrow, 123, Wyberton Low-rd., Boston.

B. A. Halliday (Bristol), Ltd. (499186). Regd. Sept. 5, 153, Coronation-rd., Bristol, 3, bldr. and contractor. Nom. cap.: £3,000. Dirs.: B. A. Halliday and Edith M. Halliday.

E. J. Kingdon, Ltd. (499214). Regd. Sept. 6, North-st., South Molton, Devon, bldr. and contractor. Nom. cap.: £6,000. Dirs.: E. J. Kingdon and Mrs. N. J. Kingdon.

G. and S. Bryant, Ltd. (499217). Regd. Sept. 6, 20, Victoria-rd., Bridgwater, Som., bldrs. and contractors. Nom. cap.: £1,000. Dir.: W. G. Bryant, 105, Rhode-la., Bridgwater, Som.

Thomas Norman and Son (Neston), Ltd. (499266). Regd. Sept. 7, 19, Williamson-st., Liverpool, bldrs. and public works contractors, etc. Nom. cap.: £3,000. Subs.: T. Norman and J. Norman, Rock Cottage, Little Neston, Wirral.

Bildex Co. (London), Ltd. (499308). Regd. Sept. 10, Bildex-ho., 182-4, Dartmouth-rd., S.E.26, bldrs., etc. Nom. cap.: £2,000. Dir.: S. W. Clark, 51, Whitmore-rd., Beckenham, Kent.

Dixon and Mills (Liverpool), Ltd. (499312). Regd. Sept. 10. 42-44, Seel-st., Liverpool, 1, bldrs., contractors, steeplejacks, etc. Nom. cap.: £3,000. Dirs.: W. Dixon, 22, Woodend av., Hunts Cross, Liverpool, 19.

Gustavus Bailey (South Shields), Ltd. (499334). Regd. Sept. 11, 57, Westgate-rd., Newcastle-on-Tyne. Public works contractors and genl. bldrs., engrs., etc. Nom. cap.: £1,000. Dir.: M. B. Anderson, Moor Court, Gosforth, Northumberland.

Dennis Young and Son, Ltd. (499357). Regd. Sept. 12, 138, Ramnoth-rd., Wisbech, bldrs., contractors, etc. Nom. cap.: £1,500. Dirs.: D. Young and N. B. Young.

S. Leggett and Son, Ltd. (499401). Regd. Sept. 13, 56, Allen-rd., N.16, bldrs., contractors, etc. Nom. cap.: £100. Dir.: S. H. Leggett, 75, The Grove, Palmers Green, N.13.

Walter Parsons (Decorators), Ltd. (499403). Regd. Sept. 13, 9, Kings Walk, Wisbech, bldrs., contractors, etc. Nom. cap.: £1,000. Dir.: W. Parsons.

F. Goff and Sons, Ltd. (499489). Regd. Sept. 13, 49, Warwick-rd., Stratford, E.7, bldr. and bldg. contractor. Nom. cap.: £5,000. Dir.: F. Goff.

Lincoln and Wadhams, Ltd. (499449). Regd. Sept. 15, 11, Imperial rd., Wood Green, N.22, bldrs., etc. Nom. cap.: £500. Dir.: R. E. Lincoln.

J. Peckover, Ltd. (499472). Regd. Sept. 17, Manor-bldgs., 2, Manor-row, Bradford, bldrs., etc. Nom. cap.: £1,000. Dir.: J. Peckover, 5, Thompson-av., Bolton, Bradford.

B. I. Brown, Ltd. (499535). Regd. Sept. 20, 10, Calderwood-st., S.E.18, bldrs., etc. Nom. cap.: £3,000. Dir.: Mrs. L. L. Brown, 334, Shooters Hill-rd., S.E.

D. C. Shaw Kelly and Co., Ltd. (499542). Regd. Sept. 20, Church-st. Chambers, Wombwell, nr. Barnsley, Yorks, construction and decoration of bldgs., etc. Nom. cap.: £1,000. Dir.: D. C. Shaw, 12, Whitfield-rd., Fulwood, Sheffield, 10.

E. Bailey and Sons (Beaminster), Ltd. (499545). Regd. Sept. 20, Beaminster, Dorset, bldrs., bldg. contractors, etc. Nom. cap.: £16,000. Dir.: W. J. Bailey, St. Mary's Cottage, Beaminster, Dorset.

H. A. Bennett and Sons, Ltd. (499563). Regd. Sept. 20, bldrs., etc. Nom. cap.: £7,000. Dir.: H. A. Bennett, 4, Horse Fair, Chipping Norton.

Rayber Contractors, Ltd. (499578). Regd. Sept. 20, Manderley, Buxton-rd., Spixworth, Norfolk, bldrs., etc. Nom. cap.: £1,000. Dir.: L. B. Berry, 435, Unthank-rd., Norwich.

Ceefem (Builders and Contractors), Ltd. (499598). Regd. Sept. 21, 21, St. Johns-rd., Penge, S.E.20. Nom. cap.: £500. Dir.: C. F. Muir.

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South Western Flooring Co. Ltd., Totnes.

BRIXTON SCHOOL OF BUILDING

Evening Lecture Programme

Two special short courses and three longer courses have been organised for the 1951-52 session by the L.C.C. Brixton School of Building, Ferndale-road, S.W.4. The first of the short courses, "The Builder and his Contract," will consist of six weekly lectures (at 6.30 p.m.), commencing Friday, November 2. The lecturer is Mr. N. P. Greig, B.A., F.R.San.I., F.I.Arb., Barrister-at-Law. Fee, £1. "The Operation of Incentives Payments Schemes" is the title of the second short course of six weekly lectures (at 6.30 p.m.), commencing on Tuesday, October 23. The lecturer is Mr. T. J. Ford, L.I.O.B., A.R.I.C.S. Fee: 12/6.

The longer courses consist of Building Management Studies, each comprising 25 weekly lectures and recognised for endorsement on Higher National Certificates or Diplomas in Building. These subjects will also serve as a preparation for Groups 3 and 4 of the A.I.O.B. Examination. The first, "Building Organisation and Management," will be on Mondays at 6.30 p.m., commencing October 8, the lecturer being Mr. D. S. Bayfield, A.I.O.B., F.I.Arb., M.I.San.I. Fee: £1. The second series is entitled "Background of Management," and will take place on Fridays, at 6.30 p.m., commencing October 5, 1951, with Mr. H. E. Pacey, M.Sc.(Econ.), M.A.(Ed.), and Miss P. M. F. Hooper, B.A., as the lecturers. Fee: £1. The third of the longer courses is entitled "Financial Accountancy and Cost Accountancy," and will be held on Wednesdays, at 6.30 p.m., commencing October 10. Mr. R. Warwick Dobson, F.C.W.A., is the lecturer. Fee: £1.

HELP FOR APPRENTICES

Eastern Federation's Awards

THE EASTERN FEDERATION of Building Trades Employers have announced the winners of this year's awards of £25 each to apprentices of ability to enable them to continue an approved course of study. The awards are based on the reports of the Master, the Principal of the Technical College and the City and Guilds Intermediate (or equivalent) examination results.

The successful apprentices are:— David B. Spelling (Age 18), carpenter and joiner apprentice with W. J. Croft, Ltd., of Lowestoft; David W. Pendle (19), plumber apprentice with H. A. Holmes and Sons, Ltd., of Gorleston-on-Sea; John A. Foreman (18), carpenter and joiner apprentice with H. Everett and Son, of Colchester; and John A. Cross (19), carpenter apprentice with R. Hogg and Son, Coney Weston, Bury St. Edmunds.

The Federation is gratified at the response to these awards and the many applications received included apprentices of a very high standard. The Federation has congratulated the winners on their fine achievement in face of keen competition and looks forward to receiving reports on their continued progress.

TRADE NEWS

A New Appointment

We are informed that Mr. S. C. Greatrix has taken over administrative control of all branches of Marbello and Durus, Ltd., and the Concrete Case Hardening Co., Ltd. Mr. Greatrix has terminated his connections with the Roman Mosaic, Ltd., Tipton, to take up this new post. All communications should be addressed to him at Crescent Wharf, Birmingham 1.

A Correction

In the advertisement supplement of our issue of September 28, Cemp Metal Products, Ltd., and Concrete, Equipment and Metal Products (Westminster), Ltd., were indexed as one company. This was an error as the two companies are in no way connected.

New Industrial Tractor

The new British Dragon Tractor, manufactured by Vivian Loyd and Co., Ltd., and distributed by H. A. Saunders, Ltd., 836-842, North Finchley, N.12, was put through a series of convincing demonstrations before nearly 600 people at Hemel Hempstead recently. The tractor, which is powered by a four-cylinder Turner diesel engine, and its full range of allied equipment are of all-British manufacture, and of robust and compact construction. The tractor and angledozer equipment, which is priced at £2,250, weighs a little under five tons, enabling it to be carried in an ordinary five-ton platform vehicle, while the 3-yard Onions Scraper could readily be towed behind. It is being marketed primarily, it is stated, as a "maid of all work" on building sites.

Engineers' Services Abroad

At the 15th anniversary dinner of Acrow (Engineers), Ltd., held recently at Grosvenor House, the main theme of the speech by Mr. W. A. de Vigier, managing director, was the expansion of the company's activities abroad. In a souvenir brochure printed to commemorate the occasion, details are given of subsidiary companies operating in South Africa, U.S.A., Canada, Australia, Peru, Argentina, Brazil, Uruguay, Venezuela and Rhodesia. Mention was made of a building now under construction in the United States, details of which could not be given owing to security reasons, where the record number of 14,000 Acrow props were in use at one time. Altogether, it is stated that the sale of Acrow props in the United States brought in 1,000,000 dollars during the last year.

OFFICIAL NOTIFICATION

Exports of Finished Steel

To ensure the proper distribution of exports of finished steel during the rest of the year the Board of Trade are revoking the current bulk licences which are valid for various destinations, endorsing them so as to exclude most foreign countries from their scope. The countries to which bulk licensing will continue will be the Commonwealth, Denmark, Finland, Norway, Portugal, Sweden and Argentina.

Exporters desiring to export finished steel to other countries will be required to submit individual applications for licences. Holders of bulk licences will receive from the export licensing branch of the Board of Trade further information about the new arrangements.

THE SCOTTISH BUILDER

St. Andrews' Plan

THE Development Plan for St. Andrews is at present in abeyance pending the Royal Commission on the claims of Dundee for a separate university, and the Town Council have decided to delay a meeting with Dr. Thomas Sharp, Oxford, until November, after the university authorities have had an opportunity of presenting their views.

Building in Scottish Stone

A PLEA to make the fullest use of the natural resources of Scotland and to get away from the snares of doles, subsidies, and grants-in-aid was made by MR. THOMAS JOHNSTON, chairman of the North of Scotland Hydro-Electric Board, when he presided at the official opening of the board's Cowal project at Glentarsan, near Dunoon.

Mr. Johnston said he and his colleagues on the board had, as a side-line to their other activities, been actively engaged in endeavouring to resuscitate the stone-quarrying industry in the North of Scotland. The Hydro Board had discovered, he said, areas where native stone building was cheaper and, he believed, much more durable and beautiful than building in brick and roughcast or cement. The Kirkwall power station was a case in point; there they had definitely saved £600 in construction costs on the building, plus £2,000 on steel for the structure.

He knew, too, that the Scottish Special Housing Association was building at present thirty-two houses at Fraserburgh in granite, and overall, for the thirty-two houses they were only £73 per house more in granite than they would have been had they been constructed of brick and roughcast, and, from that £73 there would have to be deducted some savings in maintenance, and there would be manifestly a considerably longer life for the granite house.

Of course, they would find in some quarters an over-readiness to say that there were no masons and no apprentices available. But the contractors for the Hydro Board in some areas had been able to find masons, while twenty-seven apprentices had come forward already.

He was not, he concluded, suggesting a sudden and magical return to the employment figures of 1913, when there were in the stone quarry industry in Scotland 10,000 men in addition to 20,000 skilled masons and 10,000 masons' labourers, but the time had come when positive action was required to start or restart small industries in the Highland area, otherwise he was afraid there would be no population left.

Depopulation of the Highlands

BAD HOUSING conditions ranked high among the causes of depopulation of the Highlands, said LIEUT.-COL. ALEXANDER CULLEN, County Architect and Planning Officer for Inverness-shire, speaking at a meeting of the Town and Country Planning Association (Scottish section) at Pitlochry. Difficulties associated with housebuilding in the Highlands were almost too numerous to mention, but in Inverness-shire it was the exception to obtain a tender for a four-apartment house at a cost of less than £2,000. Mass-produced houses were completely out of place.

Col. Cullen pointed out that while island populations had fallen appreciably since 1931, it was worthy of note that in the mainland parishes where modern housing schemes were erected populations had increased since 1931.

But unless a township could be reached by a road of decent standard capable of taking even a modest amount of vehicle traffic a local authority might well find that community ultimately dying on its hands. Roads which were little more than cart tracks and over which villagers were obliged to carry goods on their backs were simply not good enough for the Highlands in the middle of the twentieth century. Road conditions were often judged as a result of a visit by responsible ministers in the height of the tourist season. He suggested that such visits should be made in December or January.

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NEW BUILDINGS

Carluke.—Plans in hand for new halls at Hamilton-st., for which the architects are Wilson, Hamilton & Wilson, 153, Oxford-st., Gorbals, Glasgow.

East Kilbride.—Plans in hand for the erection at the Ringside Farm site of a new Corporation Works Department. The architect is Donald Reay (F.), Torrence House, East Kilbride.

Glasgow.—Plans to be prepared for enlargement to the Dumbarton-rd. bakery of William Gardiner & Sons, Ltd., Partick. The architect is Alfred G. Lochhead (A.), 19, Sandiford-pl., Glasgow, W.C.3.

Glasgow.—Plans in hand for new garage and offices to be erected at 313 to 325, Forge-st., Garngad-rd., St. Rollox, for which George G. Laurie, 11, Lockhart-st., Stronsay-rd., Glasgow, N., is responsible.

Glasgow.—Corporation to erect new public school at Rogermount-rd. The architect is John MacNab (F.), 129, Bath-st., Blythswood, Glasgow, W.C.2.

Glasgow.—Corporation has scheme in hand for the erection of 146 houses at Cranhill. The architect is Archibald G. Jury (F.), Housing Department, Glasgow Cross, The Trongate, Glasgow, E.C.

Glasgow.—Plans to be prepared for Kennedy, MacLeod & Co., Ltd., for their extensions and alterations at St. Vincent-cres., Sandiford. The architect is Magnus Duncan (F.), 243, Eglinton-st., Eglinton Toll, Glasgow, S.C.2.

Glasgow.—Plans in hand for the Glasgow Photo Playhouse Co., Ltd., St. Vincent-st., for alterations and additions at the La Scala picture house, Sauchiehall-st. The architects are Lennox & Paterson, 147, West Regent-st., Glasgow, W.C.2.

Lanarkshire.—C.C. to have plans prepared for a proposed new public school for the Airdrie area. The architect is William Watt (F.), County-chbrs., Albert-rd., Motherwell-Wishaw.

Lanarkshire.—C.C. is to have plans prepared for a proposed junior secondary Catholic school for Airdrie area, for which the architect is William Watt (F.), County-chbrs., Albert-rd., Motherwell-Wishaw.

Larkhall.—Plans in hand for new additions at Birkishaw to the works of Jackson, Ephick & Co., Ltd. The architects are Frank Burnet, Boston & Bell (F. & A.), 180, Hope-st., Glasgow, W.C.2.

Newhouse.—Plans in hand for various new buildings at the Industrial Estate, for which the architects are Wylie, Shanks & Wylie (F. & A.), 120, Blythswood-st., Blythswood-sq., Glasgow, W.C.2.

FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

OCTOBER 15.

***†Southampton C.B.** — School, Valentine-av., Shirley. Boro' Architect. Dep. £2 2s. Tenders by November 14.

OCTOBER 16.

***Surrey C.C.**—Proposed extension at Guildford Technical College. County A., County Hall, Kingston-on-Thames.

***Thurrock U.D.C.**—Re-erection of weighbridge at Orsett Heath. E. & S., Council Offices, Grays. Dep. £1 1s.

OCTOBER 17.

***†Barrow-in-Furness C.B.**—First phase of Central College of Further Education, Howard-st. L. Allen, T.C. Dep. £2 2s. Tenders by November 7.

OCTOBER 18.

***†Hampshire Police Authority.**—Erection of three pairs of police houses, Nightingale-ave., Eastleigh. County A., The Castle, Winchester. Dep. £1 1s.

***†Herne Bay U.D.C.**—12 houses, Greenhill estate, Herne Bay. A. S. Wilson & Partners, 8, Princes-st., Storey's Gate, S.W.1. Dep. £2 2s.

OCTOBER 19.

***North-East Metropolitan Regional Hospital Board.**—Construction of two low-grade blocks at South Ockendon Hospital. Secretary, 11a, Portland-pl., London, W.1.

***Reigate B.C.**—Erection of garages at three estates. George G. Sanderson, A.M.Inst.C.E., E. & S., Town Hall, Reigate.

***Wilmslow U.D.C.**—74 houses at Lacey Green. E. & S., Council Offices, Green Hall. Dep. £2 2s.

OCTOBER 20.

Bathavon R.D.C. — 42 dwellings at Bathford. H. H. Goldsmith, architect, 18, Gay-st., Bath. Dep. £2 2s.

***†Preston C.B.**—Erection of Larches County Primary Sch. E. & S. Dep. £2. Tenders by November 24.

OCTOBER 22.

***†Middlesex C.C.**—(a) erection of superstructure, Primary Sch., Bullamoor-la., Enfield; (b) erection of Grammar Sch., Wood End Green-rd., Hayes; (c) erection of Primary Sch., The Fairway, Edmonton. Chief Education Officer, 10, Great George-st., S.W.1. Dep. £2 2s.

***†Newcastle Regional Hospital Board.**—Proposed new chest clinic at Workington Infirmary. W. J. Ball, 1, Lonsdale-st., Carlisle.

***†Newcastle Regional Hospital Board.**—Alterations and adaptations of No. 4 Ward at Garlands Hospital. W. J. Ball, 1, Lonsdale-st., Carlisle.

***†Southampton C.B.**—Health clinic, Sullivan-rd., Surrey House estate. Boro' Arch. Tenders by November 16. Dep. £2.

OCTOBER 24.

***†Worthing Boro'.**—44 flats and 58 houses, Maybridge estate. B.E. & S. Dep. £2 2s.

OCTOBER 25.

***†East Sussex C.C.**—Additional classrooms, etc., at Three Bridges County Primary Sch. J. Catchpole (F.), County Hall. Tenders by November 28.

***†Hampshire Police Authority.**—Police houses on three sites. County Architect, Winchester. Dep. £1 1s. each.

OCTOBER 26.

***Bootle C.B.**—18 dwellings (Scheme No. 22f.) and 10 dwellings (Scheme No. 22g.) at Sterrix-la. B.S., Town Hall. Dep. £2 2s.

***†Bucks C.C.**—Proposed College of Further Education at High Wycombe (second phase). County A., County Hall, Aylesbury.

***Durham County Police Authority.**—Four police houses at Axwell Park, Swalwell (2nd phase). G. R. Clayton (F.), Court-la.

***Durham T.C.**—Construction of 12 garages at Sunderland-rd. housing estate. City E., Town Hall. Dep. £2 2s.

West Ham C.B.—26 maisonettes at Plymouth-rd. area (Contract 158) and 15 houses, 11 flats, 30 maisonettes at Village-st. area. Thomas E. North (F.), 70, West Ham-la., E.15. Dep. £2 2s.

***West Sussex C.C.**—Adaptations to provide new staff room at Lancastrian County Sec. Sch., Chichester. County A., County Hall.

OCTOBER 27.

***Bournemouth C.B.**—3 police houses at various sites. Boro' A., Room 101, Town Hall. Dep. £2 2s.

Maesteg U.D.C. — 80 houses at the Turberville housing site. E. & S., Council Offices. Dep. £3 3s.

OCTOBER 29.

Morecambe and Heysham B.C.—Erection of garage and office block—cleansing dept. B.S. Dep. £1.

Welton R.D.C. — Erection of eight houses at Scothern and four houses at Stainfield. Wm. Saunders and Partners, 24, Castle Gate, Newark-on-Trent. Dep. £3 3s.

OCTOBER 30.

***Altrincham B.C.**—New clubhouse, Municipal Golf Links, off Stockport-rd. Boro' S. Dep. £2 2s.

***Guildford B.C.**—54 houses at Bushy Hill. B. & S., Municipal Offices. Dep. £2 2s.

***Ware R.D.C.**—Four houses at Widford. Davidge & Partners, 5, Victoria-st., Westminster, London, S.W.1. Dep. £1 1s.

OCTOBER 31.

***Aireborough U.D.C.**—15 houses at Bolton House estate. E. & S., Council Offices, Micklefield-hse., Rawdon. Dep. £2 2s.

***Crosby Boro'.**—Lavatories, Moor-la. by-pass road, Great Crosby. B.E. & S. Dep. £2 2s.

***Dodworth U.D.C.**—64 houses on two sites. L. Willoughby, Housing Offices, Council Offices, Dodworth, near Barnsley. Dep. £2 2s.

Kingsbridge U.D.C.—20 houses at Rack Park estate. E. & S., Council-chbrs. Dep. £2 2s.

***Swale R.D.C.**—(a) 14 houses and site works and (b) soil sewers, sewage disposal works and estate roads, School-la., Bapchild. E. & S., 48, Bell-rd., Sittingbourne. Dep. £3 3s.

NOVEMBER 2.

***Chingford Boro'.**—Conveniences, Hatch-la., E.4. S. J. Hellier, B.E. & S. Dep. £1 1s.

***Erith B.C.**—(a) repairs, (b) repainting or (c) repairs and repainting of bridge No. 630A, which carries road B.213 (Erith-Woolwich) across B.R. main line (Woolwich-Dartford). J. H. Clayton, E. & S., Town Hall. Dep. £1 1s.

***Leeds T.C.**—Erection of children's home, Raynell-dr., Ireland Wood, Cookridge. R. A. H. Livett, O.B.E., A.R.I.B.A., City A., Priestley House, Quarry Hill, Leeds 9. Dep. £1 1s.

***Ploughley R.D.C.**—Two pairs of houses, sewers, etc., Piddington. E. & S., Waverley House, Bicester. Dep. £2.

***Wembley B.C.**—Construction of sports pavilion at Preston Park. B.T., Town Hall. Dep. £2 2s.

NOVEMBER 5.

***East Grinstead U.D.C.**—Two bungalows, 8 flats and 28 houses at Blackwell Farm estate. Dep. £5 5s.

***Fife Police Joint Com.**—Work in connection with erection of sub-divisional police station. Robt. Galbraith & Lawson, 21, Crossgate, Cupar.

***Portslade-by-Sea, Sussex, U.D.C.**—Erection of 54 dwellings in two sections on Mile Oak (Valley) site. Geo. W. Warr & King, architects, 137, Albion-st., Southwick. Dep. £3 3s.

NOVEMBER 6.

***Barrow-in-Furness C.B.**—Erection of South Newbarns County Inf. Sch., Lesh-la. J. N. Flitcraft, A.M.Inst.C.E., E. & S., Town Hall. Dep. £2 2s.

***Chatham Boro'.**—30 bungalows, Wayfield estate. H. D. Peake, B.E. & S. Dep. £2 2s.

NOVEMBER 7.

***Bedford B.C.**—Construction of public conveniences. B.E. & S., Newnham-hse, Horne-la. Dep. £1 1s.

***Guildford R.D.C.**—24 dwellings, together with ancillary works, at Georgelands. E. & S., Millmead-hse. Dep. £6 6s.

NOVEMBER 9.

***Carlisle City.**—Central kitchen, Adelaide-st. City E., 18, Fisher-st. Dep. £2 2s.

NOVEMBER 12.

***Chertsey U.D.C.**—46 dwellings with outhouses, paths, fencing and drains, Woodham Lodge estate, New Haw. E. & S. Dep. £1 1s.

***†Hornsey B.C.**—22 flats at two sites. B.E. & S., Town Hall. Tenders by December 10.

***Stockton-on-Tees Boro'.**—School, Roseworth, Durham-rd. Boro' Arch. Dep. £2 2s.

NOVEMBER 13.

***Bournemouth C.B.**—62 houses (Contract L.A.62) and 12 bungalows (Contract L.A.12) at Leybourne estate. Boro' A., Room 101, Town Hall. Dep. £2 2s.

NOVEMBER 16.

***West Sussex C.C.**—Conversion of "Marlands," Itchingfield, to provide home for aged persons. County A., County Hall.

NOVEMBER 21.

***Redcar B.C.**—Erection of two blocks of four shops and maisonettes at Dales estate. B.E., Municipal-bldgs. Dep. £5 5s.

NOVEMBER 27.

***Langport R.D.C.**—Ten houses at Chatham-pl. N. H. N. Darby, A.R.I.B.A., Westminster Bank-chbrs., Fore-st., Taunton. Dep. £2 2s.

NOVEMBER 29.

***Ipswich C.B.**—56 flats (Contract No. 1) and 18 houses (Contract No. 2) at Maidenhall estate. B.S., 19, Tower-st. Dep. £3 3s.

NO DATE

Karachi Port Trust.—Rebuilding of the east wharves at Keamari and for the construction of a large new dry dock at Karachi. Supply and Stores Department, Office of the High Commissioner for Pakistan, 40, Lowndes-sq., London, S.W.1. Ref. No. SS7574.

***†Tunbridge Wells B.C.**—Six flats at St. James-rd. B.S. & W.E., Town Hall. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

OCTOBER 20.

Southport C.B.—B.E. (materials).

OCTOBER 27.

***†Durham C.C.**—Heating, domestic hot water and ventilation installations at Bellingham New Technical College and Hartlepool West View New County Sch. G. R. Clayton, F.R.I.B.A., County A., Court-la.

NOVEMBER 1.

***Hertford B.C.**—Repair and replacement of gates and gate posts at various housing estates. Housing Manager, 57, St. Andrew-st.

NOVEMBER 5.

***St. Albans City.**—External painting 174 houses. City E. & S., 16, St. Peter's-st. Dep. £1 1s.

NOVEMBER 6.

***Southport C.B.**—Electrical installations in 182 existing houses on Essex-rd. estate. A. & T.P. Officer, Pavilion-bldgs., Lord-st.

NOVEMBER 17.

Windsor R.B.—B.E. (Materials).

NOVEMBER 30.

***†Durham C.C.**—Heating, domestic hot water and kitchen ventilation installations at three schools. G. R. Clayton, F.R.I.B.A., County A., Court-la.

ROADS, SEWERAGE AND WATER WORKS

OCTOBER 29.

***Newark R.D.C.**—Road works, sewers and sewage disposal plant at Collingham. Wm. Saunders & Partners, 24, Castle Gate, Newark-on-Trent. Dep £3 3s.

GENERAL BUILDING WORK (LONDON)

Barnet.—FLATS.—R.D.C. to erect 33 flats at Bells Hill.

Brentford and Chiswick.—FLATS.—B.C. propose erection of 55 flats at St. Thomas's and 24 flats at Edensor-gdns. Plans by Boro' Architects' Dept.

Carshalton.—SHOPS AND FLATS.—U.D.C. to erect nine shops and 11 flats at the Mount.

Clapham. — ADDITIONAL ACCOMMODATION. — L.C.C. Further Ed. Sub-Committee propose additional accommodation, estimated to cost £31,020, at Clapham and Streatham Hill training college, Michael Hall, Leigham Court-rd. Architects are Poulton and Freeman, FF.R.I.B.A., 15, Robert Adam-st., W.1.

Clapham.—WAR DAMAGE REPAIRS.—Preliminary plans have been approved by L.C.C. schools subcommittee for war damage repairs and improvements at Clapham Manor County primary school. Architect is Cecil C. Handyside, A.R.I.B.A., 68, Gt. Russell-st., W.C.1.

Gospel Oak.—REDEVELOPMENT.—St. Pancras .B.C. Town Planning and Housing Development Com. recommend that Powell and Moya, AA.R.I.B.A., 36, Gt. Smith-st., S.W.1, be authorised to proceed with preparation of their scheme for development of the area bounded by Lismore-circus, Lamble-st. and the proposed new road linking Grafton railway bridge with Oak Village. Com. further recommend, subject to acquisition of the land by the council, the appointments of Davis Belfield and Everest.

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LEAD SCRAP

Following the recent decrease in the price of lead, the Minister of Supply has made a new Order reducing the price of re-melted lead and lead scrap by £5 per ton. The new prices are :

	Per ton £
Re-melted lead	160
Scrap cable sheathing	160
Lead scrap other than cable sheathing ..	156

The Order, the Non-Ferrous Metals Prices (No. 8) Order (S.I, 1951, No. 1793) came into force on October 8, and can be obtained from the Stationery Office, price 2d.

LEAD PRODUCTS

Following the recent decrease of £5 per ton in the Government controlled price of Lead as announced by the Ministry of Supply, the Associated Lead Manufacturers, Ltd., announce the following amended basis prices which came into effect on October 1 :

	Decreased Per ton £ s.	To-day's Basis Price Per ton £ s.
Genuine English Dry White Lead (Basis in 1 x 8-cwt. cask) ..	3 10	to 200 10
Genuine Ground English White Lead (Basis in 1 x 5-cwt. cask)	3 10	,, 216 10
Genuine Refined English Red Lead (Basis in 1 x 5-cwt. cask)	4 0	,, 194 0
Genuine English Powdered Litharge (Basis in 1 x 5-cwt. cask)	4 0	,, 194 0
Genuine Refined English Red Lead Ground in Oil (Basis in 1 x 5-cwt. cask)	4 0	,, 215 0
English Sheet Lead (Basis for 1-ton lots)	5 5	,, 199 0
English Lead Pipe (Basis for 1-ton lots)	5 5	,, 200 5
English Lead Shot (Basis for 1-ton lots)	5 0	,, 203 5

	Per gal. s. d.	Per gal. s. d.
Genuine English White Lead Paint (Basis for 20-gal. lots in 1-gal. tins)	1 0	to 69 0
Guaranteed English White Lead Paint/Tinted (Basis for 20-gal. lots in 1-gal. tins)	1 0	,, 69 0
Genuine English White Lead/ Red Lead Priming Paint (Basis for 20-gal. lots in 1-gal. tins) ..	1 0	,, 69 0
Genuine English Red Lead Paint BSS. 1011, Type I (Basis for 20-gal. lots in 1-gal. tins) ..	1 0	,, 71 0
Red Lead Ready Mixed Paint— BSS. 1011, Type II (Basis for 20-gal. lots in 1-gal. tins) ..	0 6	,, 57 0

PLATE GLASS

As and from October 8, the prices of polished plate glass are increased. The new cut size plate glass tariff is as follows :—

	Polished Plate Glass Ordinary substance about ¼ in. thick per ft. sup. Glazing for Glazing Purposes s. d.	Selected Glazing Quality s. d.	Silvering Quality s. d.
In Plates not exceeding—			
2 ft. sup. ..	3 2	3 8	4 5
5 ft. sup. ..	3 10	4 5	5 3
45 ft. sup. ..	4 5	5 0	6 0
100 ft. sup. ..	4 9	5 9	7 6

	Glazing for Glazing Purposes per ft. sup.
Unless extra sizes, i.e.	
Plates exceeding 100 ft. sup., or 160 in. long or 96 in. wide	s. d.
Not exceeding 135 ft. sup., or 135 in. wide	7 4
180 ft. sup., or 135 in. wide	10 0
200 ft. sup., or 135 in. wide	14 0
Plates exceeding 200 ft. sup., or 135 in. wide, prices on application.	

The usual thickness of Polished Plate is about ¼ in., but if required in the following special thicknesses, in Glazing for Glazing quality, the undermentioned extra charges will be made :

⅛ in./⅜ in. ⅛ in./⅛ in. ¼ in. bare ¼ in. exact ⅜ in./½ in. ½ in. exact	6d. per ft. sup.

⅛ in. thickness no extra charge

STONEWARE DRAIN PIPES

As and from October 5, the prices of all grades are increased by 10 per cent.

BLUE BRICKS

These bricks are increased by approximately 8s. 6d. per thousand, the revised prices as follows :

	per 1,000. £ s. d.
Best blue pressed Staffs.(London Stations)	21 8 6
Best blue Bullnose (London Stations) ..	22 2 6
Blue wire cuts (London Stations) ..	19 4 0

Hendon.—Congregational Church.—Simmonds and Brown, A.R.I.B.A., 1-3, Central-chbrs., Hendon Central, N.W.4, have received town planning approval, in principle, for proposed erection of Congregational church, Edgware-rd., The Hyde, N.W.9.

Poplar.—Flats and Maisonettes.—B.C. Town Planning and Housing Development Committee recommend appointment of W. V. Zinn, M.I.C.E., 172, Buckingham Palace rd., S.W.1, as consultant engineer in connection with the erection of 45 flats and maisonettes at Tetley-st. area. Com. further recommend appointment of Rider Hunt and Partners, Bridge-house, Queen Victoria-st., Blackfriars, E.C.4, as quantity surveyors for the scheme.

Poplar.—Dwellings.—B.C. Town Planning and Housing Committee have approved plans for erection of 388 dwellings in 1952 housing programme, for submission to Minister of Local Government and Planning. Plans by Boro' Architects' Dept.

Poplar. — Dwellings. — Town Planning and Housing Com. have approved plans, erection of 196 dwellings at St. John's Parish area, for submission to L.C.C. Plans by Boro' Architects' Dept.

St. Pancras. — Flats. — Town Planning and Housing Development Com. have appointed Hugh Roberts and Davies, F/A.R.I.B.A., 27, Grosvenor-pl., S.W.1, as architects for a scheme to comprise 195 flats on a site bounded by Osnaburgh-st., Robert-st., Albany-st. G. A. Dodd and Partners, 17-18, Railway Approach, S.E.1, have been appointed consultant structural engineers for the scheme and C. E. Ball and Partners, quantity surveyors.

St. Pancras.—Appointment.—B.C. Town Planning and Housing Development Com. approved appointment of Powell and Moya, AA.R.I.B.A., 35, Gt. Smith-st., S.W.1, architects for development of Allcroft-rd. Compulsory Purchase Order and Temporary house site, No. 42.

St. Pancras.—Plender-st. Housing Scheme.—Town Planning and Housing Development Committee have approved appointment of Gny Morgan and Partners, F/A.R.I.B.A., 36, Upper Mall, W.6, architects for erection of a baths establishment with flats over at Plender-st.

St. Pancras.—Flats.—L.C.C. approval granted for erection of 138 flats, with provision for shops on a site bounded by Judd-st., Hastings-st. and Thanet-st. T.P. and Housing Development Com. have approved the appointment of Hamilton and Chalmers, FF/A.R.I.B.A., 16, Old Buildings, Lincoln's Inn, W.C.2, as architects for this scheme.

St. Pancras.—Appointments.—B.C. Town Planning and Housing Development Com. recommend appointment of T. Sibthorp, F.R.I.B.A., 27, Grosvenor-pl., S.W.1, as architect for development of Regent's Park Area " B " (west of Augustus-st.). Com. further recommend appointments of W. V. Zinn, 172, Buckingham Palace-rd., S.W.1, as consultant structural engineer for the scheme, and Rider Hunt and Partners, Bridge-hse., Queen Victoria-st., E.C.4, quantity surveyors.

Shoreditch. — Adaptation. — L.C.C. Further Ed. Sub-Committee approved proposal for the adaptation of Laysterne school for purposes of National College of Food Technology at an estimated cost of £17,576. Architects are Hugh Minty and Partners, F.R.I.B.A., Chantry-hse., Buckingham Palace-rd., S.W.1.

Wembley.—Houses.—General Purposes Com. asked to recommend B.C. to apply for Ministry of Local Government and Planning for sanction to borrow £8,208 for erection of six houses at Minterne-rd. Plans by George McLean and Partners, A.R.I.B.A., 34, The Mall, W.5.

Woolwich.—Dwellings.—Housing Com. have approved lay-out plans submitted by Boro' Engineer for dwellings at St. Mary's re-development area. Scheme provides for 51 dwellings outside the curtilage of the Rectory and 15 on the Rectory site.

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TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Alnwick.—Erection of 18 houses at Felton, for R.D.C. Architect is T. J. Cahill, Lloyds Bank-chbrs., Alnwick: *R. Carse & Son, Ltd., Amble, £24,716.

Alsager.—70 houses at Close-la., for U.D.C.: *H. Lee Bros., The Crescent, Hockley, Birmingham, £59,782; 16 bungalows at Well-la.: *J. W. Swinton, Sandbach, Cheshire.

Bootle.—16 flats at Sterrix-la. site: *Direct Labour.

Bradford.—Extensions to Norman Bank: *H. Johnson & Sons (Forsley), Ltd., £11,177.

Bradford.—Building of first block of £300,000 Margaret McMillan Memorial Training College, for Ed. Com.: *Alfred Robinson (Builders & Contractors), Ltd., Bradford, £127,059.

Durham.—New church at Shotley Bridge, Co. Durham: *R. C. Williamson, Ltd., Rowlands Gill, Co. Durham.

Glasgow.—Alterations and additions to the Colston junior secondary school, Mr.' John MacNab (F.), 129, Bath-st., Blythswood, Glasgow, W.C.2. Excavation, brick, building and allied: *Angus M. MacDougall & Co., Ltd., £38,891. Joinery, carpentry and allied: *Thomas Henderson & Sons (Glasgow), Ltd., £13,403. (Other contracts let.)

Hereford.—42 dwellings at Villa-st., Hunderton, 12 at Beattie-ave., 30 at Ross-rd., and 126 at Newton Farm estate, for Housing Com.: *George Wimpey & Co., Ltd., £297,436.

Hyde.—74 houses at Cheetham Fold estate: *Vessey Bros., Ltd., Marple.

Kirkby.—Erection of £1,000,000 factory for Standard Motor Co., Ltd., Coventry. General contractors for scheme, which has been designed by the Standard company's staff are, *Garlicks, Ltd., 42, Far Crosford-st., Coventry. Steelwork engineers are Carrier Engineering Co., Ltd., 24, Buckingham-gate, London, S.W.1.

Lanarkshire.—New contracts valued at £56,000 have been placed by C.C. for new town at East Kilbride: *Murdock Makenzie, Ltd., Motherwell, £30,000 (Murray site); *James Ritchie (Builders), Ltd., Uddingston, £26,000 (Westwood site).

Leeds.—Houses for T.C.:—210 at Swinnow and Moorside estates: *Spooners (Hull), Ltd., Glebe-rd., Stoneferry, Hull, £273,034; 28 flats and 8 houses: *R. M. Thompson, Ltd., 29, Lady-la., Leeds, £39,220.

L.C.C.—Adaptation as temporary accommodation for the County of London Quarter Sessions of Marylebone Old Baths, Marylebone-rd., St. Marylebone :—

Henry Kent (Builders), Ltd., Lewisham ...	£21,641
J. M. Hill & Sons, Ltd., Wembley	20,924
Kirk & Kirk, Ltd., Putney	20,876
Thomas & Edge, Ltd., Woolwich	20,079
J. Jarvis & Sons, Ltd., Westminster	19,523
C. P. Roberts & Co., Ltd., Holborn	19,500
Perrys (Ealing), Ltd., Ealing	19,453
Harry Neal, Ltd., St. Marylebone	19,275
Leslie Bilsby, Ltd., St. Marylebone	17,490
*Yeomans & Partners, Ltd., St. Marylebone...	17,410

Architect's comparable estimate is £16,877.

Erection of Gill-st. county primary school, Stepney :—

Hall, Bedall & Co., Ltd., Lambeth	£42,006
W. Shurmur & Sons, Ltd., Tottenham ...	40,981
Thomas Tierney & Co., Ltd., Poplar ...	40,351
William Nicholson & Son (Leeds), Ltd., E.C.4	40,264
Geo. Parker & Sons, Ltd., Peckham... ...	40,050
The Demolition & Construction Co., Ltd., Westminster	39,553
F. R. Hipperson & Son, Ltd., E.C.2	38,313
C. P. Roberts & Co., Ltd., Holborn	38,264
Mansfield & Neil, Ltd., Minories, E.C.3 ...	37,536
Gee, Walker & Slater, Ltd., Westminster ...	37,294
Tersons, Ltd., Goswell-rd., E.C.1	36,399
Walter Gladding & Co., Ltd., Stepney ...	36,396
R. J. Truscott, Ltd., West Ham	36,254
Yeomans & Partners, Ltd., Westminster ...	35,878
E. A. Russell, Ltd., Walthamstow	35,616
Thomas Bates & Son, Ltd., Romford ...	35,434
Charles S. Foster & Son, Ltd., Loughton ...	34,969
J. Garrett & Son, Ltd., Wandsworth... ...	34,766
H. Fairweather & Co., Ltd., Muswell Hill	34,377
*J. & R. Rooff, Ltd., East Ham	34,108

Comparable estimate of architect in private practice responsible for the work is £34,100.

Repairs to war-damaged open-air swimming bath at Victoria Park :—

Lavender, McMillan, Ltd., Worcester Park	£38,756
Truett & Steel, Ltd., Thornton Heath ...	37,750
Thomas & Edge, Ltd., Woolwich	37,170
Mullen & Lumsden, Ltd., Holborn	35,979
E. A. Roome, Ltd., Hackney	35,912
Rowley Bros., Ltd., Tottenham	35,616
W. H. Gaze & Sons, Ltd., Kingston-upon-Thames	35,488
Kirk & Kirk, Ltd., Putney	34,300
*Patman & Fotheringham, Ltd., Islington...	33,731

Preliminary estimate of the appointed architect (not based on quantities) was £20,236. In view of the difference between this amount and that of

the lowest tender the appointed architect negotiated a reduction of £1,267 1s. 4d., making a revised tender of £32,463 18s. 8d. The lowest tender, as revised, was accepted.

Construction of remainder of foundations and whole of superstructure of first part of main shopping centre at Hainault estate, Essex:—

Charles S. Foster & Sons, Ltd., Loughton	£229,750
A. E. Symes, Ltd., Stratford	225,591
Prestige & Co., Ltd., Westminster	224,947
E. A. Russell, Ltd., Walthamstow	223,915
Thomas & Edge, Ltd., Woolwich	222,310
A. T. Rowley (London), Ltd., Tottenham...	220,753
Sir Lindsay Parkinson & Co., Ltd., Holborn	220,199
Speirs, Ltd., Westminster	219,312
Gee, Walker & Slater, Ltd., Westminster	216,661
Henry Boot & Sons, Ltd., Kensington ...	215,602
Rowley Brothers, Ltd., Tottenham	215,412
W. J. Simms, Sons & Cooke, Ltd., Westminster	212,364
*Stewart & Partners, Ltd., St. Marylebone	211,521

Comparable estimate of director of housing and valuer is £210,440.

Construction of superstructure of block 4, comprising 20 flats, and other work at Meridan estate extension, Greenwich:—

The Unit Construction Co., Ltd., Bracknell	£42,993
W. H. Gaze & Sons, Ltd., Kingston-upon-Thames	41,549
Mansfield & Nell, Ltd., E.C.3	39,257
Whyatt (Builders), Ltd., Wandsworth ...	39,124
Gratton Wilson, Ltd., Stratford	37,912
H. T. Oliver & Sons, Ltd., Lambeth... ...	37,832
Stewart & Partners, Ltd., St. Marylebone...	37,805
C. P. Roberts & Co., Ltd., Holborn	37,564
F. & H. F. Higgs, Ltd., Lambeth	36,980
Thomas & Edge, Ltd., Woolwich	36,000
*A. Roberts & Co., Ltd., Westminster ...	36,403

Comparable estimate of director of housing and valuer is £34,025.

Construction of five-storey block of 30 flats and other work at Northwold estate, Hackney:—

C. P. Roberts & Co., Ltd., Holborn	£75,875
Galbraith Bros., Ltd., E.C.1	73,411
Griggs & Son, Ltd., Westminster	72,267
A. Roberts & Co., Ltd., Westminster ...	71,846
H. C. Horswill, Ltd., Forest Gate	71,323
Kirk & Kirk, Ltd., Wandsworth	69,899
W. H. Gaze & Sons, Ltd., Kingston-upon-Thames	69,627
F. Troy & Co., Ltd., Southwark	68,959
Bridge, Walker, Ltd., Lambeth	67,364
*E. A. Russell, Ltd., Walthamstow	64,852

Comparable estimate of appointed architects, Messrs. Val Myer, Hart & Willis, is £65,400.

Construction at Tabard-gdn. estate extension, Long-la. site, Southwark, of four-storey block of 12 flats, six tenants' stores and other work:—

Harry Neal, Ltd., St. Marylebone	£30,570
The Bunting Construction Co., Ltd., Westminster	30,342
Halse & Sons, Ltd., Woolwich	30,219
Hall, Beddall & Co., Ltd., Lambeth ...	29,994
M. J. Gleeson (Contractors), Ltd., North Cheam	29,384
W. H. Gaze & Sons, Ltd., Kingston-upon-Thames	28,376
C. F. Kearley, Ltd., Chiswick	27,684
C. Miskin & Sons, Ltd., St. Albans	27,520
Rowley Brothers, Ltd., Tottenham	27,350
Marshall Andrew & Co., Ltd., Westminster	27,175
Stewart & Partners, Ltd., St. Marylebone ...	26,980
*Thomas & Edge, Ltd., Woolwich	26,433

Comparable estimate of director of housing and valuer is £25,257.

Construction of seven blocks of flats and other work at Barnsbury estate, Muriel-st. site, Islington. The rates and prices in the bills of quantities for blocks 9, 9a, 10 and 11 and other work (contract A) will be used to value the cost of the construction of blocks 4, 5, 8 and other works (contract B). The whole development will comprise 151 flats in four five- and three three-storey blocks. Two laundries will be provided and there will be 69 pram or storage sheds and three children's play spaces:—

J. Jarvis & Sons, Ltd., Westminster ...	£142,441
Patman & Fotheringham, Ltd., Islington...	141,231
A. T. Rowley (London), Ltd., Tottenham	140,623
Kirk & Kirk, Ltd., Wandsworth	139,975
Lavender, McMillan, Ltd., Worcester Park	139,123
W. H. Gaze & Sons, Ltd., Westminster ...	138,647
Gee, Walker & Slater, Ltd. Westminster	136,437
Allen Fairhead & Sons, Ltd., Enfield ...	131,424
*Tersons, Ltd., Finsbury	129,997

Architect's comparable estimate is £131,836. On the basis of the prices in the lowest tender, the estimated cost of the work in contract B is £156,122.

Construction of eight shops with eight three-room maisonettes above, 14 garages and other work at Becontree, Heath Park extension, Essex:—

The Bunting Construction Co., Ltd., Lambeth	£39,700
Whyatt (Builders), Ltd., Wandsworth ...	38,591
J. & R. Rooff, Ltd., Plaistow	37,984
Stewart & Partners, Ltd., St. Marylebone	37,680
Rowley Brothers, Ltd., Tottenham	37,483
Herbert Richardson & Sons, Ltd., Erith ...	37,200
Ward & Paterson, Ltd., St. Marylebone ...	37,183
Charles S. Foster & Sons, Ltd., Loughton...	36,876
H. T. Oliver & Sons, Ltd., Lambeth... ...	36,648
Thomas Bates & Son, Ltd., Harold Wood	35,900
H. Webb (Builders), Ltd., Hornchurch ...	35,455
McManus & Co., Ltd., Whetstone	35,418
Building Estates, Ltd., Woodford	34,241
*S. R. Bryett, Dagenham	32,900

Comparable estimate of the director of housing and valuer is £35,378.

Construction of 21 blocks of flats and other works on the Putney Park-la. site, Wandsworth. The rates and prices in the bills of quantities for blocks 27-31, 31a and 32, and other work (contract A) will be used to value the cost of the construction of blocks 33 and 51-55 and other work (contract B) and blocks 36, 37, 40-42, 45, 59 and 60 and other work (contract C). Whole development will comprise 913 flats in three-, five- and six-storey blocks:—

W. J. Simms, Sons, & Cooke, Ltd., Westminster	£571,747
Lavender, McMillan, Ltd., Worcester Park	548,950
E. Clarke & Sons, Ltd., Addlestone... ...	545,530
F. & H. F. Higgs, Ltd., Camberwell ...	544,530
Rowley Brothers, Ltd., Tottenham	544,298
E. H. Smith (Croydon), Ltd., Croydon ...	540,777
A. T. Rowley (London), Ltd., Tottenham...	539,906
M. J. Gleeson (Contractors), Ltd., North Cheam	539,879
Tersons, Ltd., Finsbury	539,464
*Kent & Sussex Contractors, Ltd., Westminster	531,096

Architect's comparable estimate is £556,341.

Construction of five-storey block of 39 flats and other work at Solander-gdns., Stepney:—

Tersons, Ltd., Finsbury	£90,992
Trollope & Colls, Ltd., Holborn	87,372
C. Miskin & Sons, Ltd., St. Albans	86,424
J. Jarvis & Sons, Ltd., Westminster... ...	85,697
Lavender, McMillan, Ltd., Worcester Park	85,207
Prestige & Co., Ltd., Westminster	84,991
George Parker & Sons, Ltd., Camberwell ...	84,587
Patman & Fotheringham, Ltd., Islington ...	83,638
Rowley Brothers, Ltd., Tottenham	83,588
A. E. Symes, Ltd., Stratford	82,458
*Thomas & Edge, Ltd., Woolwich	82,413

Erection of Bradmede (Battersea North), Upper Tulse Hill (Lamberth, Norwood), and Eliot-pl. (Lewisham North) county primary schools. Tenders were based on schedules of prices for a typical school of 600 places and after adjustments the assessment of the tenders received is as follows:—

C. F. Kearley, Ltd., Chiswick	£271,161
F. R. Hipperson & Son, Ltd., E.C.2... ...	268,613
Thomas & Edge, Ltd., Woolwich	268,340
Lavender, McMillan, Ltd., Worcester Park	264,510
J. Garrett & Son, Ltd., Wandsworth ...	262,013
M. J. Gleeson (Contractors), Ltd., North Cheam	261,001
A. T. Rowley (London), Ltd., Tottenham...	258,561
John Laing & Son, Ltd., Mill Hill	257,659
Prestige & Co., Ltd., Westminster	257,175
Leslie & Co., Ltd., Kensington	256,177
Kent & Sussex (Contractors), Ltd., Westminster	252,185
G. E. Wallis & Sons, Ltd., Westminster ...	252,149
Henry Boot & Sons, Ltd., Kensington ...	251,180
Tersons, Ltd., Finsbury...	251,006
Stewart & Partners, Ltd., St. Marylebone	246,305
*Gee, Walker & Slater, Ltd., Westminster...	244,210

Architect's comparable estimate is £242,423.

Extension and improvement of Wendell Park county school, Hammersmith North:—

Marshall Andrew & Co., Ltd., Westminster	£68,855
Leslie & Co., Ltd., Kensington	64,944
Halse & Sons, Ltd., Woolwich	64,650
C. P. Roberts & Co., Ltd., Holborn	63,909
Stewart & Partners, Ltd., St. Marylebone...	63,100
A. Roberts & Co., Ltd., Westminster ...	63,089
Whyatt (Builders), Ltd., Wandsworth ...	62,827
C. F. Kearley, Ltd., Chiswick	62,178
Herbert Richardson & Sons, Ltd., Erith ...	61,922
J. M. Hill & Sons, Ltd., Wembley	61,204
Thomas & Edge, Ltd., Woolwich	60,800
*Kirk & Kirk, Ltd., Wandsworth	59,594

Comparable estimate of architect in private practice responsible for the work is £60,349.

¶London (Admiralty).—Particulars of contracts placed by Civil Engineer-in-Chief's Dept., Admiralty:—

Helston: Erection of 35 officers' houses, Dudley Coles, Brookland Lodge, Bainbridge-av., Hartley, Plymouth. *West Leigh*: Construction of workshops, etc., Keith Andrew & Co., Ltd., Warwick-st., Worthing.

Portsmouth: H/W heating system, Norris Warming Co., Ltd., 18, Hampshire-ter., Portsmouth.

Deptford: Trenching, etc., for cable, W. & C. French, Ltd., 50, Epping New-rd., Buckhurst Hill, Epping, Essex. *Coventry*: Glazing to workshop gables, Hills (West Bromwich), Ltd., Albion-rd., West Bromwich. *Coventry*: Structural steelwork, The Burton Constructional Engineering Co., Ltd., Welmoor-rd., Burton-on-Trent.

¶London (Air Ministry).—List of contracts to value of £500 or over for week ended October 6:—

Hutting: Markwell Holmes & Hayter, Ltd., Hull. *Building work*: M. A. Boswell (Cttrs.), Ltd., Wolverhampton; Selfick Nicholls & Co., Ltd., St. Austell, Cornwall; W. A. Major, Gainsborough, Lincs. *Surface-dressing work*: Anglo-American Asphalt Co., Ltd., London, W.C.2. *Resurfacing work*: Neuchatel Asphalt Co., Ltd., London, S.W.1; Geo. Wimpey & Co., Ltd., London, W.6. *Painting work*: Thos. Cotton, Ltd., Mansfield, Notts. *Civil engineering*: Robt. M. Douglas, Ltd., Birmingham; M. J. Gleeson (Cttrs.), Ltd., North Cheam, Surrey. *Installation of heating services*: Benham & Sons, Ltd., London, W.1.

¶London (British Railways).—London Midland Region:—New contracts placed by London Midland Region:—

Supply of labour for the painting of railhead depot for S.P.D., Ltd., Liverpool, Brunswick Dock: *Arnold Sharrocks, Ltd., Spotland Bridge, Rochdale. Widening of bridge No. 14, for St. Alban's T.C.: *Leonard Fairclough, Ltd., Grosvenor-gdns., London, S.W.1. Part reconstruction of Derby abutment of bridge No. 51: *Fletcher & Co. (Contractors), Ltd., Forest-rd., Mansfield, Notts. Labour for the cleaning and painting of Sheffield City Station: *J. Arundel & Co. (Louth), Ltd., Cornmarket, Louth, Lincs. Supply of labour for cleaning and painting of Walsall passenger station: *Percy T. Street, Ltd., 4, Mount-rd., Tettenhall Wood, Wolverhampton. New substructure and filling for bridges 16 and 21 on Stanton and Shipley branch: *Fletcher & Co. (Contractors), Ltd., Mansfield. Renewal of roof coverings, stage 2, patent glazing of Euston down side carriage-shed roof: *Henry Hope & Sons, Ltd., Smethwick, Birmingham. Patent roof glazing of Liverpool Exchange station roof: *Mellowes & Co., Ltd., Corporation-st., Sheffield. Recovering of Liverpool Exchange station roof with R.P.M. "V" beam sheeting: *Robertson Building Service, Wolverhampton Corrugated Iron Co., Ltd., Ellesmere Port, Wirral, Cheshire. Supply of labour only for the external cleaning and painting of St. Pancras Chambers: *R. Ridd & Son (Contractors), Ltd., 7, Burntwood-av., Hornchurch, Essex. Supply of labour for cleaning and painting and repairs to cement rendered masonry at Birmingham New-st. station: *Percy T. Street, Ltd., 4, Mount-rd., Tettenhall Wood, Wolverhampton.

¶London (M.O.W.).—Contracts placed by M.O.W. during week ended September 29:—

London: Min. Lab., Tavistock-sq., Interior repairs and decorations, Sykes & Son, Ltd., 8, Essex-st., W.C.2; Victoria and Albert Museum, Repairs and decorations, Campbell Smith & Co., Ltd., 25, Newman-st., W.1. *Berkshire*: Broadmoor Institution, Exterior painting, Fassnidge, Son & Norris, Ltd. 267, High-st., Uxbridge. *Cumberland*: Low Row, Carlisle, Erection of telephone repeater station, R. C. Williamson (Durham), Ltd., Station Works, Rowlands Gill, Co. Durham. *Devonshire*: Lympstone, Erection of naval ratings' houses, Exeter Building Contractors, Ltd., 14, Dix's Field, Exeter. *Gloucestershire*: Warmley, Bristol, Erection of telephone repeater station, Staverton Builders, Ltd., Staverton, Totnes, Devon; Min. Materials, Eastern-av., Barnwood, Gloucester, Interior decorations, Alfred Bagnall & Sons, Ltd., 146, West-st. Bristol. *Huntingdonshire*: Huntingdon Castle Hill-hse., Interior decorations, T. H. Kenyon & Sons, Ltd., Chancellors Works, Crexley-rd., W.9. *Lancashire*: M/F Buffer Depot, Simonswood, Interior and exterior ainting, C. A. Critchley (S.H.), Ltd., 92, Church-st., St. Helens. *Monmouthshire*: B.O.T. Govilon Hos., nr. Abergavenny, Alterations and additions, Noel T. James, Ltd., Kelsedon-st. Works, Newport; R.O.T., G.T.C., Oakdale, Adaptations for storage, Noel T. James, Ltd., Kelsedon-st. Works, Newport. *Northumberland*: Grindon, Erection of telephone repeater station, John Jackson & Son, 72, Corporation-st., Newcastle. *Nottinghamshire*: Queen's-st. Telephone Exchange, Worksop, Extensions to apparatus room, R. Rouse & Sons, High-st., Mansfield Woodhouse; Telephone Exchange, Arkwright-st., Nottingham, Extensions, R. Hustwayte, 37, Haydon-rd., Sherwood, Nottingham. *Yorkshire*: Garforth, Erection of telephone exchange, Walter Ripley & Sons, Ltd., 128, West-st., Leeds.

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¶**London (War Dept.).**—Works contracts placed by W.D. during week ended September 29:—
Derbyshire: Building work, A. Holmes & Sons, Ltd., Derby. *Nottinghamshire*: Building work, Bernard Pumfrey, Ltd., Gainsborough; Miscellaneous, C. V. Russell & Son, Newark; Miscellaneous, H. Rouse & Sons, Mansfield Woodhouse. *Northants*: Miscellaneous, Loakes & Pettit, Ltd., Thrapston. *Gloucestershire*: Air-conditioning plant, Jeffreys & Co., Ltd., London, S.E.1. *Surrey*: Building work, J. Chuter (Farnboro'), Ltd., Farnborough. *Hampshire*: Miscellaneous, G. J. Furneaux, Ltd., Christchurch. *Somerset*: Electrical work, Cable Jointers, Ltd., London, W.3. *Lanarkshire*: Chain link fencing, Barnet & Morton, Ltd., Kirkcaldy. *Berkshire*: Painting and decorating, Alfred Bagnall & Sons, Ltd., London, W.12. *Essex*: Road work, General Asphalte Co., Ltd., London, S.W.1.

Manchester.—Houses for T.C. at Northern Moor: *Simms, Son & Cooke, Ltd., Nottingham, 8 (Contract 127); *Marsden & Champion, Ltd., Timperley, 81 (Contract 153). At Woodhouse Park: *Senior Building Co., Ltd., Cheadle, 9 flats (Contract 136); *W. Hodgkinson (Builders), Ltd., Buxton, 28 houses (Contract 138); and *Lanes Construction Co., Ltd., Swinton, 32 houses (Contract 155), at Bank-hse. extension, Blackley.

Newcastle-on-Tyne.—Erection of 99 houses and 26 flats at Montagu estate (Section G). G. Kenyon, City Architect: *William Leech (Builders), Ltd., 2, Clayton-st., Newcastle-on-Tyne, £158,326 (subject to M.L.G. & P. approval).

Northampton.—44 houses at Sunnyside, for B.C.: †T. Wilson & Son, Ltd., 67, Sheep-st., Northampton, £57,550.

Oldham.—Infants' sch. at Fitton Hill, for E.C.: †Hills (West Bromwich), Ltd.

Oldham.—90 houses at Fitton Hill estate, for B.C.: *Unit Construction Co., Ltd., Knutsford, Ches. (subject to M.H. approval).

St. Albans.—28 dwellings, Sheephouse Farm estate, London Colney, for R.D.C. C. Huskinson, L.R.I.B.A., 43, Upper Lattimore-rd.:—
G. Moss & Sons, Ltd., Cranleigh Wharf, Lady Margaret-rd., Southall, Middlesex... £93,932
R. H. Powis, Ltd., 13, Neeld-par., Wembley 84,214
Galladay Estates, Ltd., 24, Violet-rd., E.3 82,429
H. & D. Carter, Ltd., 3 & 5, Alexander-rd., N.19 75,977
S. & K. Darvill, Ltd., 131, Rickmansworth-rd., Watford 75,316
C. L. Gorwyn, 1, Hillside-dr., Edgware ... 74,700
H. C. Janes, Ltd., 183, High Town-rd., Luton 72,502
*Davies & Rentowl, Ltd., 102a, Victoria-st., St. Albans 69,594
(Subject to M.L.G. & P. approval.)

South Shields.—Erection of four blocks of three-storey flats at Wellington-st., for T.C.: *Carruthers & Son, Heugh-ter., South Shields, £77,614.

South Shields.—Work has started on erection of Presbyterian church hall in Prince Edward-rd. Architects are Page, Son & Hill, 75, King-st., South Shields: *Henderson Brothers, Smith-st., Tyne Dock, South Shields.

South Shields.—98 houses at Simonside, for T.C.: *R. Summerbell & Sons, South Shields.

Stockton.—22 houses at Greatham, for R.D.C.: *John Proud, Ltd., £25,999.

Stratford-on-Avon.—14 houses at Redlands estate, for T.C.: *Stratford-on-Avon Builders, £25,968.

Wallasey.—12 shops, eight maisonettes and 12 garages at site P9, for B.C.: *J. L. Rawsthorne & Co., Edwards-la., £26,074.

Walton and Weybridge.—28 houses on Burwood-rd. estate, for U.D.C. E. A. Lister, A.M.I.C.E., M.I.Mun.E., Council Offices, Walton-on-Thames: *W. & E. Simmons, Ltd., 4, Rydens-rd., Walton-on-Thames, Surrey, £40,314.

Warminster.—110 houses, married quarters, at Imber-rd., for War Office: *E. Mortimer & Son, The Weston (Bath).

Woking.—40 houses, Elm Bridges estate, for U.D.C. H. P. Tame, A.M.I.C.E., and quantities by John McBain & Partners:—
Universal Housing Co., Ltd., Rickmansworth £72,878
R. Powis, Ltd., Wembley 65,956
E. Clarke & Sons, Addlestone, Surrey ... 60,901
Drury & Co., London 60,586
A. & J. Simmons, Ltd., Kingfield-rd., Kingfield, Surrey 59,651
*E. P. Wickens & Sons, Ltd., Addlestone, Surrey 58,327

Woolwich.—48 higher income group houses at Coldharbour estate: *Halse & Sons, Ltd., £127,759.

Worthing.—Erection of four-form entry prototype school in prestressed concrete, for T.C.: *Gilbert Ash, Ltd., 2, Stanhope-gate, London, W.1.

Wrexham.—Construction of factory on the Trading estate for British Celanese, Ltd.: *Higgs & Hill, Ltd., Crown Works, South Lambeth-rd., London, S.W.8, at a cost exceeding £1,500,000.

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